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THE AMERICAN JOURNAL OF

CLINICAL MEDICINE

Vol. 29, No. 6 JUNE, 1922

THE Clock of Life is wound but once
And no man has the power
To tell just when the hands will stop—
At late or early hour.
Now is the only time you own;
Live, Love, Toil, with a will;
Place no faith in "Tomorrow," for
The Clock may then be still.

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SERIES II

HAY FEVER MEMORANDA

Late Spring Type. Patients whose hay fever develops in the latter part of May, during June or early July, should be tested with the pollens of sweet vernal grass, June grass, orchard grass, timothy and red top. The one giving the major reaction should be selected for treatment to the group. The unrelated rose pollinates simultaneously and is the primary or secondary cause in an occasional case—hence, should be included in tests where direct exposure exists. The same is true of dandelion, daisy and in some sections alfalfa.

Late Summer Type. Patients whose hay fever develops in mid-August and continues until frost should be tested with pollens of local importance—primacy being given to the long distance wind pollinated plants, e. g. ragweed. However, where contact is unavoidable, as on a farm, the short distance wind pollinated plants, e. g. corn—and the insect pollinated plants. e. g. sunflower, which are also atmospheric—cannot safely be ignored.

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For **Cutaneous Tests** and **Treatment** cover early and late spring, also **summer** and **autumn.**

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YONKERS, NEW YORK

The American Journal of
CLINICAL MEDICINE
Dependable Therapeutic Fact for Daily Use

Vol. 29, No. 6 June, 1922

Saving For That Rainy Day

WE are under the impression that never before have people in moderate circumstances done so large an amount of wise and productive investing as at the present time. In so far as this new development of the people's finances took its inception with the nation-wide purchase of liberty bonds, which, in its turn, was necessitated by the War—that same war was not without benefit. Certain it is (at least it seems so to us) that there are now more opportunities for safe investment and that the man or woman who really wishes to save and to "create an estate" (as mortgage and bond dealers call it somewhat pompously) can do so far more easily than formerly when the people of small and moderate means were limited practically to the discouragingly slow results of accounts in the savings banks.

We have before us, as it happens, a promotion letter from one of the leading Chicago firms dealing with first mortgages real estate serial bonds. We have no business relations with this particular firm, for the simple reason that our business is being attended to through other channels. Nevertheless, their promotion letter is excellent and might very well stimulate a favorable response on the part of those who have not yet succumbed to the lures of the saving habit.

We speak of the lures of the saving habit deliberately, because, once this habit has been acquired, it is rather fun; and there is no good reason why thrift should at any time degenerate into "closeness" or miserliness.

We are told that some eighty-five percent of people attaining the age of sixty-five years are dependent; reversely, that only fifteen percent of these people have a sufficient income to make them independent of assistance, whether from their children or from relatives or from charitable agencies. For the wealthiest country in the world, that is really a serious arraignment, and it is a state of affairs that should be remedied. It can be remedied, but only by the people themselves, by the adoption of habits of thrift, by the deliberate and continued saving of a definite portion of one's income and by investing the savings periodically when they amount to sums sufficiently large to buy mortgage bonds, industrial bonds or other certificates of value.

Interest from savings banks amounts to only three and three and one-half or at most four percent. First-class mortgage bonds and other safe and productive investments yield an income of six and seven percent. For us ordinary mortals, it is not wise to attempt more than that, because more highly productive invest-

ments no longer are as safe as they were during the strenuous years of war time. Still, six percent is twice as much as three percent, and each time the savings account has grown to $100, it is perfectly proper to buy a $100-bond for that sum. Some bonds there are that can be bought at less than par, in which case the advantage is with the investor, providing that the investment is safe.

All this is rather elementary, but it is as well to call attention to it. The important point is, to start saving small sums; to stop seemingly immaterial little leaks, to cease frittering away a few dollars here and there that do not produce adequate returns, either in pleasure or in advantage; and, instead of wasting them, putting them to work either in the savings bank or in more productive investments.

Of course, it must be admitted that there is an irreducible minimum in people's income which they require absolutely for decent living. If their total income amounts to no more than that irreducible minimum, it requires sacrifice, self abnegation and doing without things to put by even moderate savings. Still, the habit should be acquired and maintained. Perhaps the "irreducible minimum" is placed too high. We know of one young fellow at least who considers the sum of $45 a week as entirely inadequate to serve his personal necessities. He has nobody in the world to look out for but himself. To our way of thinking, this man could easily save at least $10 a week and live comfortably on the remaining $35. After one year, the saving of $520 would produce somewhat over $15 and, thus, his savings would grow constantly and persistently. The class in arithmetic may work out the problem.

It must be admitted that physicians have a peculiarly difficult problem as regards saving money, in as much as they have no regular, stated income, but their earnings are paid irregularly and, therefore, it is difficult to set aside certain sums at definite intervals. Nevertheless, even physicians may "create an estate", and even those physicians can do so whose earnings do not go beyond the most moderate computations of economists.

True, here again, the irreducible minimum requires consideration, and the urgent necessities of living and of maintaining an adequate professional outfit may make it impossible to devote sums that had been intended for the savings bank to that purpose, especially when the automobile needs expensive repairs and when large stocks of drugs, instruments, and so forth, have to be paid, when premiums for life and accident insurance fall due and under similar circumstances.

We can not presume to dictate to physicians just how they should arrange their methods of saving. The point is that, under all circumstances, physicians are bound to "make the effort", even as other people have to do. A little thought and deliberation, a modicum of perseverance and insistence may help. That, though, is another story.

He is rich whose income is more than his expenses; and he is poor whose expenses exceed his income.—Bruyère.

CREATING AN ESTATE

In the preceding editorial, we have pointed out the necessity for the physician, as for other people, to develop and maintain habits of thrift; to put by as regularly as is possible certain sums that are eliminated from circulation, so to speak, for the purpose of depositing them in the savings bank and, when sufficient funds have been accumulated in this manner, to make investments that produce a better income than is provided by the interest paid by the same savings bank. While it must be admitted that the amount of sums to be set aside for that purpose may properly constitute a definite percentage of the gross income, and while the question of relativity always enters into this matter, as it does in everything else, it is manifestly more difficult for the physician to set aside ten, or fifteen, or twenty percent of his gross income, doing with that much less for his daily needs, than it may be for one whose income is received at regular intervals, weekly, or monthly, or quarterly, as the case may be. Regularly paid employes can and should manage their expenses according to the budget system, putting aside, first of all, a certain percentage of their wages or salaries and investing them to the best possible advantage. Owing to the irregular manner in which the physician's income is received, the budget system is difficult to adhere to. Nevertheless, ways and means can be found to set aside sufficient sums through which a fund may be accumulated that will grow not only through the constant additions but also through its own earnings. Now, here is a suggestion:

The Children of Israel were required to give to the Temple one-tenth of all they had. This custom has been taken over by many orthodox Christians, it being adhered to especially by those belonging to the Methodist Church, and we know many people who rigidly put aside

one-tenth of all they receive, using it for their share in supporting the church and its various activities, for charity and for everything that may be included in the phrase "giving it to the Temple."

It strikes us that physicians in their daily work do so much practical charity and give of their whole-hearted efforts so greatly "to the Temple" that even the most faithful and conscientious among them may feel satisfied on that score. If they can bring themselves to that view, there would become available a tenth of their gross income which might be set aside for the purpose of saving and of ultimately creating an estate.

We can not admit that such a procedure could, in any way, be designated or criticized as selfishness or as robbing the Temple. If it is considered that eighty-five percent of all people at the age of sixty-five are dependents, it follows logically that steps taken by the individual man or, for the sake of our discussion, by the individual physician, to prevent his being one of those eighty-five percent, do not constitute an act of selfishness but rather one of public-spirited foresightedness, tending to lessen the number of dependent old people; conversely by increasing the number (now, about fifteen percent) who can live on their own as long as life is in them.

We hold that the man in moderate circumstances, who takes measures to create a fund the income of which will support him in his old age, when he is no longer able to work, is a good citizen, and we maintain that the principle is a salutary one; that general adherence to it would increase the wealth of the nation by improving the financial condition of the individual.

One important point is that physicians generally, throughout the country, should be careful to leave the sucker class. We all of us have had our little experiences (the evidences of which are locked away safely in our deposit boxes, or at least in our memories) of foolish investments, of failures in attempts at getting-rich-quick schemes, oil, mines, and other fake promotions through which we all of us lost our share of good money. If these "goat feathers" amount to only $100 for each of us, the total sum lost by physicians to worthless swindlers aggregates at least $15,000,000, if we consider that there are one hundred and fifty thousand physicians in the United States. It is a truism that small investors, like physicians in general practice must be, can afford to invest only in absolute safe undertakings, even though the returns are modest. It is a great deal safer to collect $6.00 per annum on each $100 put by than it is to deplore the loss of $40 that were promised but did not materialize.

Ways and means can be found. We have suggested one; others can be discovered readily. The point at issue is, that the onerous work that falls to the physician's lot, especially that of the general practitioner, should be made productive enough to save him from the sordid worry of bread and butter care. Incidentally, it seems to us that the physician who is careless in his collections and who is over-ready to "forgive his debtors" is not a public benefactor, as he may fondly believe himself to be, but really harms his careless debtor by encouraging him in habits of sloth, of careless finances and of unjustified sponging.

No man can tell whether he is rich or poor by turning to his ledger. It is the heart that makes a man rich. He is rich or poor according to what he is, not according to what he has.—Beecher.

THE METROPOLITAN LIFE INSURANCE COMPANY

Time was when the function of a life insurance company amounted virtually to a gamble between it and its policy holders as to who would benefit most from the premiums paid in. The company naturally exercised, and still exercises, great care in the selection of risks that are accepted for insurance. As long as the premiums were paid promptly, not much thought was given to the policy holder unless death closed his record and his beneficiary called for the insurance money. The company, in its turn, utilized the capital accumulated in the form of premiums, that is to say the gross surplus over and above operating expenses, for investments that should enable it to meet its obligations.

In course of time, the self-evident fact forced itself upon the consciousness of the officers of insurance companies that it would be good business to keep their policy holders alive and in good health as long as possible. This fact is so self-evident as to be axiomatic. From its recognition, it was but a short step to the undertaking of a real campaign for improved health. The Life Extension Institute, The Framingham Demonstration, certain research work and various other undertakings are logical outgrowths and developments of the basic idea.

Among the life insurance companies that showed a commendable and progressive spirit in this direction, The Metropolitan ranks easily first and it initiated a campaign for improved

health in 1909. Mr. Fisk, who was then vice president and (owing to the impaired health of the president) actually executive head of the company, believed that a company which had direct relationships with the holders of ten million industrial policies (most held by working men and their families) had an opportunity that meant a responsibility other than that involved in the contract of insurance. This led to the welfare activities of The Metropolitan which, as related to policy holders, were not a philanthropic venture. Indeed, whatever conserved the health of the holders of ten million policies was good business. It was good business not only for the company but for the policy holder individually. If his life could be prolonged and his living conditions improved, it was quite as much to his gain and that of his family as it was to the company.

With the first health pamphlet, entitled "A War Upon Consumption" (1909), a campaign was started which was continued, first, through the issuance of other special pamphlets on Whooping-cough, Smallpox, Malaria, Measles, Typhoid fever, Hookworm, Diphtheria, Pneumonia, Scarlet fever; then on The Child, First Aid in the Home, Health of the Worker, and so forth. Through visiting nurses, much aid was given to sick and to mothers who were instructed. The Framingham Demonstration was undertaken at the instigation and with the financial assistance of The Metropolitan Life Insurance Company. In short, this company became active in various directions for the physical and social-economic betterment of its policy holders and of the people at large.

What has been the result of these activities? This can only be surmised. However, there were 38,000 fewer deaths among the Metropolitan Industrial policy holders in the United States and Canada during 1920 than there would have been if the 1911 death rate had prevailed. In other words, the death rate in 1920 was 23 percent lower than it was in 1911.

The death rate from tuberculosis among Metropolitan policy holders was 40 percent lower.

From typhoid fever, it was 72 percent lower.

From acute "catching" diseases of children, it was 28 percent lower.

In each of these cases, the death rate went down much faster than in the general population.

This saving in mortality means $3,500,000 every year to the company.

The lesson is obvious: what appeared to be at first, merely good business policy, has been demonstrated to have a far reaching effect in lessened morbidity and mortality. This resulted in lessening of expense and, thus, added to the wealth of the nation. The idea can be followed out almost indefinitely in its various phases. To us, as physicians, it emphasizes the good sense, the value and economic importance of Preventive Medicine. Physicians ("teachers") of the future will be far more concerned with keeping their clients well than with restoring their patients to health. This, of course, calls for a readjustment of the financial relations between physician and the people; also, it necessitates reeducation of both in various directions. This is discussed in the next editorial.

Isn't it a fine provision of life that we forget the little troubles and remember mostly the big joys? That's why memory is a God-given gift when it is rightly treated.—Frank Yeigh.

"THE METROPOLITAN" AIDS PROSPECTIVE CITIZENS

There is before us an attractive little booklet belonging to the "Aids to Citizenship Series" and which is entitled "How to Take Out Your First Papers." It is characterized as an easy book in plain English for the coming citizen; and is issued by the Metropolitan Life Insurance Company.

This booklet has been prepared by the Immigrant Service and Citizenship Bureau of The Metropolitan, primarily as a practical aid to policy holders desiring to take out their first papers. Since many of our foreign-born inhabitants desire to become citizens of their adopted country, it is necessary to instruct them how to go about it. In this little booklet, they are informed that the first step is, to make a declaration of intention; in other words, to take out their first papers. In addition, however, something more is supplied than necessary facts and information. The purpose of "The Metropolitan" is, to encourage the newcomer in this country to partake in the life of the community and to gather to himself the spirit of American institutions and ideals. The booklet is intended also as a helpful guide during the waiting period between the first and final citizen papers. It aims to promote a knowledge of the lives of great Americans and to inculcate in the mind of the prospective citizen a respect for and love of the flag and the traditions it symbolizes.

This service rendered by The Metropolitan Life Insurance Company appeals to us as emi-

nently patriotic. It is more than just a bid for business. It is distinctly American and it must be very encouraging to those who want to become integral parts of the people among whom they have cast their lot.

Since physicians frequently come in contact with immigrants who have not yet become nationalized, they should make it their business to encourage those among them who would make desirable citizens to declare their intention of acquiring citizenship. Having done so, they can refer these people to the immigrant service of "The Metropolitan" for further guidance.

Every mind was made for growth, for knowledge; and its nature is sinned against when it is doomed to ignorance.—William E. Channing.

"BARNUM WAS RIGHT" (?)

We are quite accustomed to speak approvingly of Barnums cynical expression (or, was it not merely good-natured sarcasm?) that the world wants to be humbugged. Of course, we were quite aware that some equally keen philosopher—and, who will deny Mr. Barnum's title to that designation?—had voiced the same sentiment before. So, it was not exactly a matter of surprise when, recently we found the quotation *die weltt die will betrogen syn* in the "Narrenschiff" of Sebastian Brant, which was published in 1494. The "Ship of Fools" (1509), which is a free imitation in English of the German poem, written by Alexander Barclay, and a Latin version by Jacobus Locher (1497) were hardly less popular than the German original. In the latter, the expression gains additional and scholarly dignity by becoming *Mundus vult decipi.*

Under the form of an allegory—a ship laden with fools and steered by fools to the fools' paradise of Narragonia—Brant lashes in his book with unsparing vigor the weaknesses and vices of his time. Although, like most of the German humanists, essentially conservative in his religious views, Brant's eyes were open to the abuses in the church, and the "Narrenschiff" was a most effective preparation for the Protestant Reformation.

Incidentally, the "fool literature" is by no means limited to Brant's work. The "Britannica" cites Nigel, called Wireker, (fl. 1190) a monk of Christ Church Priory, Canterbury, who wrote a satirical *Speculum stultorum* (fools' mirror) in which the ambitious and discontented monk figured as the ass Brunellus, who wanted a longer tail. Brunellus, who had been educated at Paris, decides to found an order of fools which shall combine the good points of all the existing monastic orders. Cock Lovell's "Bote" (about 1510) is another imitation of the "Narrenschiff." Cock Lovell is a fraudulent currier who gathers round him a rascally collection of tradesmen. They sail off in a riotous fashion, up hill and down dale, throughout England.

Likewise, we remember Puck's modern expression, "what fools these mortals be," which he borrowed from Shakespeare.

There is no doubt but what Brant's dictum was based on an ancient proverb. Luther employs it, adding, "as was said in olden times." He repeats the Latin version with the addition *verum proverbium* (a true proverb). Occasionally, the expression *Mundus vult decipi* (the world wants to be humbugged) is supplemented by *ergo decipiatur* (therefore let it be humbugged). Indeed, Luther declares *Mundus vult decipi. Ich will da zu helffen* (I am ready to help to that end). The full quotation is attributed also to Kardinal Carlo Caroffa by Jacques Aug. de Thou in the *Historia sui temporis* (Lond. 1733).

Incidentally, it is rather an amusing fact that examination of four books written by the late Mr. Barnum failed to disclose any sentence that could be construed as expressing the sentiment that people want to be humbugged; nor was it possible to find the other Barnumism, to the effect that "there's a fool born every minute." This reminds us of a book published some years ago (in Germany, we believe), purporting to show that the late Mrs. Xantippe Socrates was by no means the termagant commonly pictured; but that, indeed, she was a very charming and long-suffering lady.

Seriously, though, it seems to us that the gullibility of people, of which we speak glibly and which, no doubt, exists in many respects, is based upon something far deeper than just the desire to have easy success. There is inherent in all of us a dissatisfaction with existing conditions and restless striving for better things which, in itself, is by no means blamable or a proper subject for criticism. If it were not for this quality of the human mind, progress would never have been made and we might still be in the prehistoric states of existence that Mr. H. G. Wells depicted so graphically in his "Outline."

While the deep and sincere desire for betterment, for advancement, for progress is actually to be commended, it is unfortunate that so many of us yield to this tendency without exercising sufficiently keen critical restraint. The consequence is that so many grasp at offers

for which promoters promise wonderful results but which careful investigation would show to be impossible of development. It is here that the wildcat schemes the oil stocks and mining shares and other enterprises of all the Colonels Sellers find a ready market.

Now, then, it goes without saying that a foolish "falling for" impossible schemes should be resisted; but by the same token the underlying desire for advancement and for progress should be fostered and encouraged. There is always something good at the bottom of every trait inherent in human nature. Intrinsically, that is not vicious, it is only potentially so, if misleading and perverted. Properly controlled, it is salutary.

We have never been impressed with cynicism in any form, which to us neither seems dignified nor indicates the possession of a profound mentality. Indeed, we can not but think that a fondness for cynicism is a characteristic of an immature or of a perverted mind. While we may be amused at Barnum's good-natured raillery, of an inherent human gullibility, it would be reprehensible to carry the idea out in fact in affairs of everyday life. It would be wrong to live up to the sentiment: *ergo decipiatur*.

To the physician, especially, the problem of deceiving his patients may become a very serious one. White lies are frequently considered as potent therapeutic measures. Still, in such an event, the crude and crass assertion of Sebastian Brant may not be taken literally and it is necessary to think twice and oftener before the physician may indulge in anything but strict truth, even though he may not, wisely, declare the whole truth at all times.

Cynicism is, usually, an affectation of superiority. In reality, it is most frequently indulged by those of immature mentality.—H. J. A.

OUR ADVERTISING PAGES

A reputable advertising agency, located in Chicago, recently sent to CLINICAL MEDICINE an ad of a Detroit concern, the Luminous Specialties Co., manufacturing, or purporting to manufacture, luminous signs and house numerals. It seems that the advertiser paid cash in advance for the advertising, to the Agency, who in turn placed the order and copy in CLINICAL MEDICINE, paying the account when bill was rendered in the usual way.

The second chapter of the story is the sad one. Following the appearance of the advertisement, several doctors wrote to us complaining that they had sent money for the merchandise offered, but that the goods were not delivered. An investigation was started, and the Agency reported that the advertiser claimed the goods had gone astray and that duplicate shipments would be made. As far as we can find out, no such adjustments were ever made by the advertiser.

While any responsibility in this matter might be waived by the agent and the publisher, we have more consideration for our readers than to let them suffer any loss through our advertising pages. With this thought in mind, we have sent refund checks in the two cases which have come to our attention, and we stand ready to reimburse others who may have had similar experiences. In the meantime, we are still following up the Luminous Specialties Company, and shall either give them the opportunity to prove that they are guiltless in this matter, or put them where they will not be in a position to defraud other doctors.

We stand behind our advertising pages, as we appreciate the confidence of our subscribers in our efforts to see that all have a square deal.

When writing to our advertisers, kindly mention CLINICAL MEDICINE, in all cases, so that we may be in a position to cooperate with you.

Wit is brushwood, judgment timber: the one gives the greatest flame, the other yields the most durable heat; and both meeting make the best fire. — Sir Thomas Overbury.

"MEDICAL RECORD" CEASES PUBLICATION

With the April 22 issue, we are informed, the *Medical Record* has ceased to exist as a medical journal. The final issue of this old-established and well-known publication appeared on that date, and announcement was made that the *Medical Record* had been sold to and combined with the *New York Medical Journal* which appears semi-monthly.

This further reduces the number of weekly American medical periodicals; indeed, we remember at this writing only the *Journal of the American Medical Association* and the *Boston Medical and Surgical Journal* which come to their subscribers fifty-two times a year.

The *Medical Record* had to its credit fifty-six years of service to the medical profession during which time one hundred and twelve volumes of the journal were published—always by the same publishers, William Wood and Company, of New York. It is remarkable that only two editors guided the editorial policy during this entire time. The late Dr. George F. Shrady conducted the journal for the first thirty-eight years of its existence and was succeeded by his whilom assistant, Dr. Thomas L.

Stedman who has, for years, been the dean of American medical editors and is looked up to by all his associates for his great erudition no less than for his editorial acumen.

We are informed that the noted old firm of William Wood & Company will now devote its energies entirely to the publication of medical books in which service it has been engaged for one hundred and eighteen years.

An announcement of the passing of the *Medical Record* recalls with just pride that many of the most important discoveries and developments in the progress of medicine were first announced to the American medical profession by the *Medical Record*. These include Lister's method of antisepsis, Koch's discovery of the tubercle bacillus and later of tuberculin, the employment of cocaine in eye surgery, of Roentgen rays, and the discovery of the antitoxins of tetanus and diphtheria, Madame Curie's discovery of radium and many others.

We can not but feel a little saddened at the thought that we shall no longer receive the *Medical Record* which always stood for honest progress in medicine. It was an independent journal, subservient to no master and willing only to serve the best interest of its clients, the practitioners of medicine.

People seldom improve, when they have no model but themselves to copy after.—Oliver Goldsmith.

WHAT DO READERS WANT?

A valued contributor said, in a recent letter: "We do get somewhat weary of reading nothing in our medical journals but 'shop dope.' Disease and disease on our medical menu card reminds me of your Chicago restaurants—the same old diet from day to day. No wonder we get mental indigestion and whirling minds while following up the menu cards of the average medical publication."

CLINICAL MEDICINE never has hesitated to supply its readers with occasional reading matter that is not strictly medical or even closely allied to it. The Editors believe that they can be helpful to their subscribers not only as medical practitioners but also as citizens, as family men and as just men (and women). It is for that reason that we like to receive at least occasional articles that have no direct reference to the doctor's professional work.

We have followed this plan especially in our editorial department, but we adhere to it also in other portions of the journal.

We have said it before, but it seems that things will bear repetition. We are always open to suggestions, always willing to reason and to consider the wishes of our subscribers regarding subjects that they desire to see discussed in the reading pages of CLINICAL MEDICINE. Sometimes it may happen logically that a physician who suggests a certain topic for discussion will be asked to write on it himself. That, of course, does not apply always. The point is, tell us what we can do to bring about a constant and continued improvement in CLINICAL MEDICINE. We want it to be the best journal published, the most helpful and the most serviceable. We look to our subscribers to aid us in making it just that.

THEORIES

In his book entitled "The Mechanics of the Digestive Tract," Dr. Walter C. Alvarez quotes Wallace to the effect that "there is no more convincing proof of the truth of a comprehensive theory than its power of absorbing and finding a place for new facts, and its capability for interpreting phenomena which had previously been looked upon as unaccountable anomalies." He also believes with Darwin that "without speculation, there is no good or original observation," and that "the observer can generalize his observations incomparably better than any one else. In other words, it would seem that one who has wrestled with a problem day and night for many years, and who has collected all sorts of data bearing upon it, should be most fitted to theorize, to suggest, and to point out the possible applications of his work. He can furnish the greatest number of jumping-off places for further research; and even those who are incited to prove him wrong may thereby advance the field of knowledge. The only danger is that he and some of his less critical readers may come to regard the suggestions and theories not as a scaffolding for the building of an edifice but as a substantial and finished structure. In this connection, a writer may have more to fear from his enthusiastic friends and disciples than from his enemies."

"Another danger at this time is that some of the building blocks taken from other edifices to be used now as foundation stones may not bear the strain. I think it was Darwin who said that a theory builder ought really to write to many of the men whom he quotes, to see whether they still hold firmly to their published opinions, and whether they approve of the interpretations which he is placing upon their work. It is even better when he can repeat many of the more important and crucial experiments in his own laboratory."

It is one of the favorite occupations of those who like to be different, who belong to the large class of more or less honestly "conscientious objectors," who are thirsting for some cheap notoriety by attacking that which is either established or in a way of becoming established, to condemn dominant views upon certain problems as being "purely theoretical." To declare sneeringly that a certain doctrine or teaching is merely theory, settles to them the question. That they have nothing better to offer in place of what they believe to have destroyed, does not disturb these easy reasoners. The important point is, that they condemn that which is accepted by others. We need not go back as far as what has been designated as the theory of evolution, for an instance. Medical teachings in the last generation have admittedly and honestly been based on theory and speculation to a large degree. Yet, to condemn it on that basis is childish and betrays the ignorance, the want of logic, the absurdity of reasoning characteristic of those who object.

To advance a theory means to make an attempt to explain a problem concerning which our knowledge is insufficient. If this knowledge were complete, there would be no problem and a theory would not be necessary. When a theory is advanced offering a tentative explanation, it is not intended to declare that such and such a thing is so; but merely we may *assume* that it is so. In the degree in which this theory is workable, it will explain and elucidate the various phases of the problem.

Take for example the socalled germ theory of disease, which has exercised so many rebellious minds and which is being attacked now on the same grounds that were advanced forty and fifty years ago and were controverted. Quite recently, the assertion has been made that "germs" are not the cause of disease but are one of its results. It sounds so familiar as to arouse a smile. The same objection was recorded in the sixties and seventies of the last century and was shown to be untenable. Similarly, the various theories attempting to explain the numerous problems of immunity and immunization are being attacked, purely on the ground that they are theory. But, I pray you, my masters, how else can one ever arrive at a solution of the problem if not by means of a theory or of various theories? If theory can be proved to be ninety or ninety-five or ninety-nine percent true, it may ultimately become established as a fact. So Copernicus and Galilei and others advanced theories, not as theories, to be sure, but as facts. They were theories, nevertheless, because their originators could not afford the ultimate proof. That was left for later investigation to procure, and the Copernicus theory has long since ceased to be viewed as a theory.

To despise theory, says Fontenelle, is to have the excessively vain pretention to do without knowing what one does and to speak without knowing what one says.

Theories are necessary. Without theories, there can be no progress; for, we can come to an understanding of the unknown only through reasoning and ratiocination from that which is known. Theories are based upon known facts and become facts in their turn when they have been proved.

The choicest thing this world has for a man is affection—the approval, the sympathy, and the devotion of true hearts.—Josiah Gilbert Holland.

THE INFLUENCE OF DRUGS ON THE MIND

Professor Ide, of the University of Louvain (*Jour. de Pharm. de Belgique,* 8 janv., 1922) addresses the pharmacists, in a manner and on a subject interesting to physicians likewise. He declares that the large and small bottles on the drug shelves contain the most astonishing means for investigating human mentality; and that nothing surpasses the delicacy and the power of these means. A man is crazy enough to be restrained, he says, and the anatomist finds nothing but a vague, diffuse redness of the brain mass. Contrariwise, another one has only a violent headache of which he complains bitterly, and you will find in the brain a tumor as large as an egg. The neurologists admit that the function of large portions of the brain remains unknown and mysterious; and it is here that the complex associations of imagery must be localized; the profound function of the intelligence, the passions, the enigmas of our good or bad humor, the taste for art, for sagacity, etc.

This is called the subconscious, in contrast to the conscious efforts. The professor continues (we translate from the French original):

If I change and change again a sentence in order to render it clear and harmonious, I look upon my cerebral function as if I were in a play in the theater. But, if I search for a comparison of ideas and if a crowd of them rush forth, bad, passable, excellent—they are like

actors coming from behind the scenes. They appear suddenly in the domain of the conscious without my having observed them come. If a grotesque word play, more or less successful, springs bruskly into the midst of my commonplace dreams, I am so astonished that I laugh at it heartily, just as if my neighbor had offered it. If I preach to a patient, who paints in black to the degree of wishing for death, and I enumerate to her all the reasons why she should be happy and bless heaven, she tells me, "I know, but I can not help myself. I am sad and I do not know why." The artist does not determine his forms beforehand, but gathers them dreaming at the seashore. He seizes a feature as it passes through the unconscious. He considers it over and over. He judges it to be good and fixes it promptly in order not to forget and lose it. Furthermore, the inventor and the genius often can do no better.

How things come about in these secret zones of our brains! They function at our request, deliberate like secret committees, unravel difficulties while we sleep and present us on waking with a solution that enchants.

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I know well of the existence of a pretentious psychoanalysis that strives to scratch the wall of the subconscious, that knocks at this closed door, that peeps through the keyhole, and that announces to us now and again that it has grasped a supreme secret. Poor fool that does not suspect the complexity of the world before it!

If it knew your bottles, this wise psychoanalysis, it would be more prudent. Let us analyze a few of them. We all know a little of the effect of this bottle that carries the label spiritus, or ethyl alcohol. For some, it means oblivion of care. It means ready laughter, sometimes impertinence or anger. . . . . However, there are numerous other things under your eyes.

Here is the solution of atropine. I give 2 or 3 milligrams to this soldier, crouching down in the first firing line, depressed, trembling, more disposed to flee than remain. And, now, under the influence of atropine, on advancing he behaves like a demon, bounding from place to place, killing, massacring, unconscious of the death which he braves at each minute. The attack over, he sleeps heavily, passing through horrible dreams of fire and blood. He awakens sad and in evil spirit. This is the excitation to the black humor.

Contrariwise, here is a colleague who desires to undergo without pain a small incision (physicians are chicken-hearted for themselves). He has received 3 centigrams of cocaine. The incision is made, the patient starts to talk. He tells stories of his active life. He sees only the bright side, especially the funny things, even those that are a little foolish. He keeps on talking for ten minutes, but suddenly he says, "I think the cocaine is going to my head; pardon me. I quit." And he leaves laughing. This is the excitation to the rosy humor.

And here a physician in the last stage of phthisis. He has seen the bacilli in his own expectoration. He reads his temperature with its sinister oscillations. He hears the rales in his cavities. It is probably the last week of his life. However, he has just received his centigram of morphine and he is talking. "I don't care, come what may. I shall take good care of myself until I am well and then I shall make my life as pleasant as possible." He closes his eyes and goes to sleep quietly. That is the sedation to foolish, incredible illusions.

Here is a civil engineer in the prime of life. He comes from a banquet that was concluded with a cup of too-strong coffee. Despite the hour, he does not feel sleepy. He goes back to his office and he dreams about his engines. Most wonderful ideas come to him. His installations might be reproduced and perfected. Such and such a combination would give a magnificent result and his pencil traces upon the paper the new engine, the original plans. Then, after hours that have been a treat for his brain and his pride, he goes to sleep. The next morning, he finds his papers and his designs. In less than a minute, he decides their impracticability and he throws his plans into the waste basket. This is the caffeine excitation with its absence of critique.

Here is a person who is wise and reasonable. Either nature or the physician administer an excessive dose of thyroidine. She becomes anxious, agitated, weepy, suspicious and unjust toward those closest to her. She makes scenes, she weeps and reproaches, trembling and weeping at the same time, as she is filled with anger and grief. This is the excitation with moral suffering and persecutional delirium.

And, see this serious little nun who has slept under the influence of barbital. She awakens whistling and laughing like a little fool, knowing perfectly well what she has said and done and without startling the other sisters except by her exuberant gaiety.

Let us pass by the bromine which allays hysterical fears and fictitious angers; arsenic

which makes the horse frisky and man courageous and anxious to work; eumydrine (atropine methyl nitrate) which is close to atropine in all its effects but gives happy dreams and the awakening from which is satisfactory.

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We are only at the beginning of this therapeutics of the subconscious centers. What a pity that our excitation and our calmness influencing the joyful humor have great inconveniences. Still, who knows but what, tomorrow, one may find inoffensive succedanea. Something like caffeine which stimulates the cerebellum without depriving it of its critical sense. A derivative of morphine which does not produce morphine addiction, and a cocaine which does not in the end deteriorate the moral sense.

At that time, one will prescribe good fortune, gaiety, courage, spirit, even like ordinary medicines: the golden age, verily.

The barking dogs of cynicism are making so much noise that any word of human wisdom can scarcely be heard.—Dr. Frank Crane.

ACCIDENT PREVENTION

We have heard of claims made by apologists of air travel, and also by enthusiastic ocean travelers, that both, flying and traveling in steamships, were actually safer than journeys in railroads, street cars, subways, elevated roads and, certainly, in automobiles. While accidents due to reckless automobile driving are excessively frequent, those occurring in connection with the railroad, street car, subway and elevated traffic are really very much less. We do not have the figures on hand relating to accidents connected with the first three modes of conveyance. For elevated structures, though, *The Elevated News* (April 1922), a little journal issued monthly by Chicago Elevated Railroads, calls attention to the remarkably good record which the Chicago Elevated Railroads have made for the safety of passengers and employes and which is the result of painstaking efforts and of cooperation between employes and the management. We are informed that educational work is carried on continuously and systematically through the safety department of the roads under the direction of a safety engineer who devotes his entire time to the work.

The organization for accident prevention work is thorough. Each department, on each of the roads, has a separate "safety committee" of its own, selected from the employes in the particular department for a term of four months. These committees meet at regular intervals during their working hours. Employes are invited to submit suggestions to the safety committee in their department and all such suggestions are considered carefully in the meetings of the safety committees and, when practical, are adopted and put into effect. During the year 1921, of 977 safety suggestions acted upon by the various committees, 709 were approved.

In the last year, 427 safety-committee meetings were held, which will give an idea of the systematic character of the work. In the same period, 240 employes served on these safety committees, thus receiving a valuable education in accident prevention. The result of this educational work is shown in the low accident rate among the employes on the elevated and in the safety of the traveling public.

Railroad work is generally conceded to be hazardous to the men engaged in it. In addition to the ordinary hazards on steam railroads, the men working on the tracks and structure of the elevated roads have to guard against the constant danger of the deadly third rail. In spite of this hazard, the records for 1921 show that elevated cars ran 56,134 miles for each employe who was injured. That means that an elevated car ran a distance greater than twice around the earth at the equator for every employe who sustained an injury. In considering that remarkable record, it should be understood that it includes trivial injuries as well as those of a more serious nature which involved loss of time. The system of reporting all injuries to employes, and the attention given to the most trivial, is so thorough on the elevated lines that of the total accidents reported among employes only one in five involved the loss of time.

Putting the record in another way, fifteen employes were injured for each 1,000,000 hours worked, which, on an eight-hour day basis, means one accident to an employe for each 8,333 days. In a hazardous occupation, like railroading, that record stands as a wonderful tribute to the educational work carried on by the Chicago Elevated Railroads to eliminate accidents of all kinds.

In closing, *The Elevated News* points out what is a self-evident fact and which applies equally to railroads and street cars as well as to elevated, namely, that the public can be of greater assistance in furthering this safety work, by exercising care in entering and leaving cars, by being careful to keep clear of closing doors and gates and by heeding the warning cautions given by trainmen.

Leading Articles

Ultraviolet-Light Therapy and Its Relation to Chronic Diseases

By EDWIN W. HIRSCH, M. D., Chicago, Illinois

THE present age cannot be called the chemical age, even though chemicals play a most important role in medicine, in the industries and, particularly, in war. Chemical gases were the most potent destructive agencies in the great struggle. Neither can the present century be called the physical age, though the aeroplane, the wireless, the radiophone, the x-ray and many other inventions have awakened our infantile minds and have caused us to realize some of the great wonders of the universe. We are evolving faster scientificially than we are socially; and, so, to the scientific mind, the present era may be rightly called the Age of Reason. Slowly, but surely, we are learning to harness the great forces of nature and turn them into such modalities as to make lighter our burden of life and increase our daily comfort. Electricity is so broadly used that it is indispensable to us; yet, seldom do we conceive of it as one of the great forces of nature. And now we are beginning to use another of nature's forces, the sun, and will mold and convert its power so that, before many years have passed, the force of this great energizer will be used in as many ways as electricity is today.

The sun has been as valuable a factor in the development of man as it has been the great generator of the vegetable kingdom. We begin to realize the forces of the sun when we see the tiny seed planted and then watch its growth under the influence of the sun and rain. For countless ages, man has enjoyed the benefits of the sun. He has worshipped the sun. He has looked upon it as a deity. The ancient Egyptians and Romans realized its therapeutic values and employed sun-baths in the treatment of certain affections. The remains of the sites where the patients exposed themselves are still existent.

Finsen was the first observer to study the the different rays of the sun with a view of determining the remedial value of the various rays. He found that the therapeutically active, or chemical, rays were, for the most part, the ultraviolet, which are called the actinic rays. As a result of these investigations, he invented the Finsen lamp which he employed in the treatment of skin diseases, particularly tuberculosis of the skin.

Rollier, of Leysin, Switzerland, realizing the value of the sun rays, exposed patients suffering from bone and joint tuberculosis to the sunlight for varying periods of time. He attributed the excellent results obtained to the improvement in the general body condition, which was brought about by the skin absorbing the actinic rays. Ollier, Bernard, Poncet and Bonnet were, also, obtaining good results in bone tuberculosis by employing sun radiations. So successful was Rollier that he opened a sanatorium at Leysin. It consisted of several buildings located at heights varying from 3,000 to 5,000 feet above sea-level, so as to get the sun rays before they were filtered out by the clouds and the minute dust particles of the air. Since that time, heliotherapy has made rapid strides and we are now able to manufacture apparatus that will produce ultraviolet rays; consequently, we are now not longer dependent upon the sun for this essential agent.

Quartz light therapy has the advantages over the sun in that;

1. We can have it any time and in any place we select, and for any desired period of time.
2. We can apply it with ease to definite areas and into cavities.
3. We are not dependent upon the weather; for, the period of the year when we may obtain good sunlight is not exceedingly long.
4. We do not have to go up to the mountains to get it unadulterated, and
5. We can have it in any quantity we rerequire.

A small amount of knowledge regarding

the physics of lights is essential. When sunlight is allowed to filter through a quartz prism and the spectrum is viewed through a spectroscope, it will be found to consist of red, orange, green and violet colors. This band of colors constitutes the limit of visible light. There are, however, rays in that spectrum that can not be seen with the naked eye; namely, the long heat waves called the infrared waves, the x-rays, and the short chemical waves called the ultraviolet waves. The ultraviolet waves, being very short, are easily filtered out but readily pass through polished quartz, air and water. The credit for the remarkable advance in the manufacture of ultraviolet rays belongs to an American engineer, Peter Cooper Hewitt, whose mercury vapor lamp produces large quantities of ultraviolet rays.

The physiology of light is a most gigantic subject; for, light is essential to growth. Life is generated in light and dies in darkness. Light is a bactericide *par excellence*. No bactericidal agent can compare with light, in this regard; for, light destroys bacteria without injurying the host. Donnelly has recently shown that diphtheria carriers can be readily freed of diphtheria bacilli in nasal and throat secretions by means of ultraviolet light. The action of the rays on the body is due to a hyperemia produced by the rays, followed by an absorption of the rays by the capillary blood streams. The rays are then carried to the various parts of the body where they stimulate the formation of leucocytes, lymphocytes, erythrocytes, whereby they thus hasten the formation of antibodies. They also are able to raise the body resistance and help it rid itself of any infecting host.

The technic essential to operate the quartz lamp is not difficult to learn but the technic essential to properly employ it demands study. The lamps are of two types, air-cooled and water-cooled, made for direct and alternating current of 110 or 220 volts. The air-cooled lamp is used for general body radiation and the water-cooled is used where close application and pressure is necessary, as in the treatment of nevi (birth marks) or in orificial work, as in prostatic and vaginal application. For general purposes, a lamp suspended from the ceiling is best, for there is always a possibility of knocking the lamp over, when on a stand, and the cost of repair is very considerable, as is also the loss of time. Special workers should have two lamps, while the general man may begin with the air-cooled lamp. He will employ both, however, before long.

The method of treatment depends upon the physical and physiological facts already explained. Since ultraviolet rays are absorbed by the capillary blood, it is our purpose to produce as much dilatation as possible so as to increase the absorbing power of the blood. This is best accomplished by means of radiant light which is obtained from a therapeutic lamp having a 1,500-watt nitrogen bulb. The patient is exposed to the radiant light for a period varying from five to twenty minutes at such a distance that the heat is felt but is not uncomfortable. The distance depends upon whether the patient's skin is thick or thin; but the average distance is 36 inches. The average exposure is about ten (10) minutes, but may vary from five (5) to twenty (20) minutes.

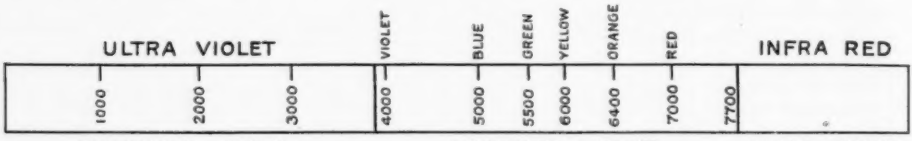

Diagram Of Spectrum Showing Wave Lengths in Angstrom Units

The eyes of both, patient and operator, are covered with colored glasses, so as to prevent conjunctivitis. The air-cooled lamp is elevated to a distance of forty inches above the patient and the shutter is opened. The light is allowed to shine upon the nude body for three minutes. As a general rule, the distance from the lamp to the patient is decreased three inches at every treatment and the time of exposure increased three minutes at each treatment. The maximal time of exposure is thirty minutes, the average being fifteen to twenty minutes, and the minimal distance is fifteen inches. The treatments are given every other day or every second day, depending upon the susceptibility of the patient to the rays and upon the nature of the disease. From

ten to fifteen treatments are administered, after which the patient is given a rest of from five to ten days and then another course instituted, if necessary. Results are certain; but persistency and time are necessary.

The general effects of a treatment are very mild. The patient becomes slightly drowsy and feels rested; during long treatments, he often goes to sleep and hates to get up when told that the treatment is at an end. Following the treatment, the skin feels warm and, after from four to six hours, a slight degree of erythema appears, similar to a mild sunburn which lasts a few days and disappears. After several treatments the skin will begin to tan and this increases as the treatments are prolonged. The reaction depends upon the individual susceptibility of the patient; blonds taking considerably less than brunettes. An initial overexposure may cause an intense

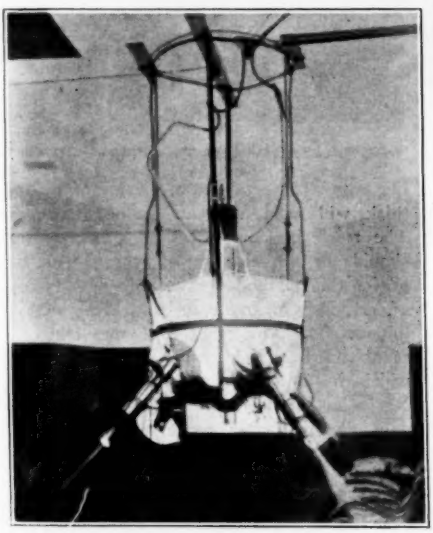

Fig. 1. Original Finsen Lamp.

inflammatory reaction of the skin and the patient will appear as if he had baked in the sun for days; but this rapidly subsides.

The skin peels like an ordinary sun burn and the patient shows no harmful results. The method to determine the patient's tolerance is, to start each patient off with a small dose and increase the exposure depending upon the previous reaction obtained.

Therapeutics of Ultraviolet Rays

The diseases that may be treated with ultraviolet rays are many. It will be best, however, if at the beginning it will be understood exactly what may be accomplished, so that no misconception will arise if the lamp fails to

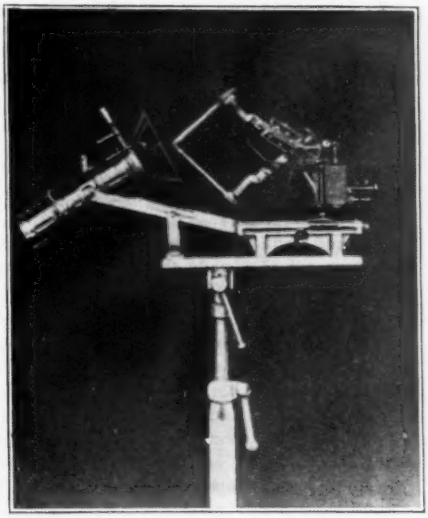

Fig. 2. Finsen-Reyn Lamp.

perform miracles. Since the action of the rays is physiological, they will produce their effect in a physiological manner. Hence there will be no quick results by a few exposures to the rays. Where a condition has been existent for some time, it will take a considerable period to efface the affection and this should be explained to the patient before treatments are commenced. In this wise, the patient will look for no wonderful phenomena over night; for though the activity of a cell may be rapidly destroyed it takes time to rebuild or revive it.

Ultraviolet rays are to be used in connection with other agencies that increase the resistance of the body. Correct drugs, fresh air, good food, exercise, massage, hydrotherapy, electrotherapy, organotherapy and surgery may rightly be used in combination to obtain a result. There is no one remedy in the world that has the power to do everything, and men have made the sad mistake of sticking tenaciously to some one method or remedy when a combination of modalities would have assisted them.

The air- and water-cooled lamps find an enormous field of usefulness in treating diseases of the skin. The beneficial action here is due to the bactericidal action of the rays, to the hyperemia produced and the accom-

panying leucocytosis, all of which assist in destroying pathological processes, removing waste and stimulating the normal cells. Alopecia (baldness) and alopecia areata (circumscribed baldness) are two affections that are often resistent to the ordinary methods of treatment. In a series of fifty cases of alopecia areata, Fox completely cured twenty-seven, twelve cases were improved (that is, downy hair had grown); eleven cases were unimproved; but most of these had been treated only three weeks, and four cases were still under treatment. He found that the patients stayed with him because of the continued improvement, while under other methods the patient is apt to change the remedy and the doctor quite frequently.

Acne is a condition that at times will drive the physician and patient to distraction because of its failure to respond to the ordinary salves and vaccines. Here, ultraviolet light therapy will show some beautiful results and people who have thought themselves doomed to go through life with a pimply face are indeed grateful when reendowed with a smooth skin.

We must never forget that the skin is an indicator of the body metabolism and a careful examination of all the other organs, a Wassermann test, a blood count, and a urine analysis should be made in all cases.

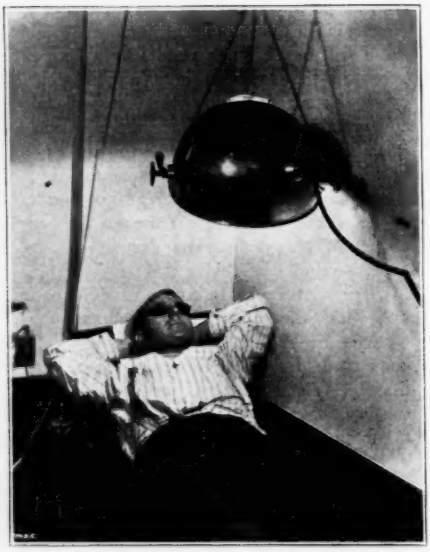

Fig. 3. Alpine Sunlamp. Treating Case of Acne.

The majority of psoriasis cases responds to ultraviolet light therapy with gratifying results, but, a psoriasis of twenty years' standing with plaques about a quarter of an inch thick will need a great deal of treatment. The result in many cases is permanent and, should the affection return, the patient will prefer this method because of the quickness of response to treatment and cleanliness of the method. The relief in herpes labialis is rapid and the vesicles can be dried up quickly, which is indeed pleasurable to the patient. Nevi (birthmarks) will respond to ultraviolet light therapy better, more quickly and with less discomfort than with any other known agent. Nevi are treated with the Kromayer lamp with a quartz lens for compression. The long rays are filtered out by means of a blue glass filter so as to prevent irritating action. By compression, we increase the penetration of the rays because, the field being rendered bloodless, the blood is not able to absorb the rays. The ultraviolet light acts on the exuberant capillaries, the cause of the trouble, and produces an endarteritis in the capillaries, thus making them impervious to blood by obliterating them. The absorption of waste material is also stimulated. There is no pain connected with a treatment, a marked inducement, though the time of treatment varies from twenty to forty minutes.

Fig. 4. Kromayer Lamp. Treating a Birthmark.

Lupus erythematosus was the original af-

fection for which the lamp was intended. From November 1895 to Jan. 1, 1902, there were 804 cases of cutaneous tuberculosis treated at the Copenhagen Light Institute. Of these, 412 were reported cured, 124 had been free from recurrences for two to six years and 288 for less than two years; 192 were nearly cured. Only twenty-six cases were unimproved.

The writer has been most successful in treating difficult cases of acne.

A Case of Acne

A boy, eighteen years old, was so badly affected with a resistant acne that he was painfully self-conscious of the condition. Other boys unknowingly do a great injustice by referring to the venereal origin of the affection, because they have been told that certain venereal affections manifest themselves by pimples. This fellow was anxious to get a clean skin, so that he would have a clear bill of health. He was informed that the first two treatments would make his face red and that he would show a decided improvement in two months. He was given a treatment of seven minutes, with the Alpine Sun Lamp at 30 inches, on each side of his face. In five days, he returned and was given a treatment with the Kromayer lamp at 3 inches distance, because of the intense seborrhea that accompanied the acne. The reaction was quite intense and lasted about two days, when it subsided. The skin began to peel and new skin replaced the old. A week following, he was given a ten-minute exposure at 27 inches; a week later, 10 minutes at 23 inches; then, 12 minutes at 20 inches; and the last treatment was for 15 minutes at 20 inches. To date, he is 85 percent improved and the lad and his mother are well satisfied with the result.

Rollier's Heliotherapy

It was in the treatment of tuberculosis of bones and joints, by means of the sun's rays, that Rollier made his triumphant success. It was Rollier's idea that the proper method of treating surgical tuberculosis was, to raise the resistance of the body whereby the local manifestation would be better able to take care of itself. The mountain air was also a potent factor in the process of building up the protective power of the blood. By employing heliotherapy, it will be found that exudates will absorb more rapidly and bone abscesses will improve. The skin will pigment under treatment and the amount of pigmentation is taken as a sign by which to gauge the amount of treatment and also to serve as a prognostic indicator. Those who tend to pigment rapidly show quicker improvement. Granulating wounds and sinuses dry up quickly under the sun rays.

Because good results are obtained, it does not mean that surgery should be omitted but it should be used when indicated in conjunction with heliotherapy; and then the outcome will result in utmost satisfaction to surgeon, heliotherapist and patient. At a recent genitourinary clinic, a surgeon told how he had removed a tuberculous testicle, some years ago, the patient succumbing a few months later to miliary tuberculosis. He declared, his plan of treatment would be different today and, should he have a similar case, he would first build up the patient's resistance with tuberculin. The point at issue is not whether it is better to use tuberculin, heliotherapy or phototherapy, but the most essential factor is the reinforcing of the patient's resistance. This reasoning is rational and shows that the modern tendency is, to recognize the untold power of the body to overcome infection when given half a chance. Heliotherapy is now being employed by many prominent workers in tuberculosis.

In Genitourinary Cases

In genitourinary work, the lamp has a field of usefulness that can not be surpassed. Prostatitis, whether of gonorrheal origin or not, is often a problem that will test the temper of patient or physician. Many patients are going the rounds now, because they have not received proper prostatic treatment. The rays are applied to the gland via the rectal route, by means of either a Wagner quartz applicator or a Plank proctoscope. The prostate is rayed with varying strengths of current beginning with a three-minute treatment and increasing to ten minutes. The results are excellent when the proper technic is carried out. The usual method of treating a prostatitis is, by hot-water rectal irrigations, instillations in the prostatic urethra, and massage. Yet, there are many cases in which the organisms are lodged within pockets that will not open and, so, the organisms continue to exert their harmful activity. Impotence is very frequently due to a prostatitis of gonorrheal origin and there is nothing that will rid the gland of these invaders as fast as ultraviolet rays. In acute infections of the prostate, heat by means of diathermy or hot water is first indicated, to be followed by light-therapy after the acute-

ness has subsided. The rays thin the secretion, rid it of the gonococci and push the infection out by inviting in the normal elements of the blood and by the stimulation of healthy tissue. Beginners will make mistakes and complain that they are not getting results. This is because of their faulty technic and lack of practical knowledge. There is as much finesse to successful quartz-light therapy as there is to a clever piece of surgery.

In gynecology, the regular use of the lamp is limited to pruritus ani and vulvæ and to Neisserian infections of the vagina and cervix. All who have treated these affections, know the difficulty of reaching all parts of the vaginal tract with an antiseptic on a tampon. The light plus an antiseptic will do better work than either alone. Pruritus ani and vulvæ is rapidly controlled by ultraviolet light. Pitcher reports that, in a series of twenty-three cases extending over a period of two years, he effected a cure in the majority of the cases in six to twelve treatments. In this troublesome affection there is no other remedy that can compare with quartz-light therapy. Ulcers of the cervix also respond well to this mode of treatment.

In Rickets

A considerable amount of experimental work has been done in rickets and, although we knew that the actual cause of the trouble was a deficiency in the proper mineral salts, yet we did not obtain satisfactory results by supplying these salts. Several workers have shown that the reason for failure lay in a lack of understanding of the value of light in physiological processes. In a paper by Park, Powers, Shipley, McCollum & Simmonds, these authors record an experimental study made on a series of rats. Eighteen rats were placed on a diet tending to produce rickets. Twelve were exposed to sunlight and six were kept in the dark. The twelve that were exposed to sun rays were entirely free from rickets, which was confirmed by histological examination. The unexposed rats contracted the disease. The beneficial effects of the sun rays were not limited to the skeleton, since the condition of the animals underwent a general improvement under the influence of the sunlight treatment. The authors conclude that the efficiency of the body cells is raised, which enables the organism to put into operation the regulatory mechanism which otherwise would have been inoperative or ineffectual. The diet supplied was high in calcium, low in phosphorus and was insufficient as to the fat-soluble vitamine A.

Similar work was carried out by Huldchinsky, by administering calcium phosphate to children and exposing them to light. Ten children treated in this manner were cured in two months, with twenty-two to twenty-six treatments. Hess and Unger have shown that they could obtain similar results by means of natural sunlight.

All the affections above named form a definite indication for the use of the lamp and success will be had if the proper technic is employed in conjunction with any other necessary measure. Most of the cases that have responded well to treatment with ultraviolet rays have done so after other methods of treatment had failed. X-rays have a somewhat definite therapeutic indication, yet they are used in a multitude of affections and excellent results are reported by many competent observers. Likewise, there are many conditions in which ultraviolet light therapy will be of assistance, yet one could not with certainty include them within the list of indications. Particularly in chronic cases, where patients have made the rounds of doctors and still complain, the chances are, there is an organic basis for the socalled neurasthenia. There is a type of chronic intoxication which can not be revealed by any laboratory test and, yet, the patient knows full well that something is wrong with his body. Though it is especially easy to allay our ignorance in diagnostic skill because the microscope will not substantiate our findings, yet, when we meet cool, deliberate people with a stable psychic system who are suffering from a vague intoxication without any relief, we are bound to admit that either we are wrong or the patient is wrong. It is in this type of case, call it borderline if you will, that quartz-light therapy saves a patient from the hands of cultists. True, it is often the last straw, but we treasure it the more because of the beneficial results.

As to Limitations of Light-Therapy

A word of caution would not be out of place at this time in regard to the limitations of light-force. All physical forces are first overrated by the medical profession, and then underrated. Because the static machine failed to accomplish everything under the sun, it was pushed into the corner by the majority and not used again. So, there are men who are going into quartz-light therapy on the record of good work done. They think that all that is necessary to be learned is, how to operate the lamp and that the turning on of a button

will do the rest. This is a terrible error for men to fall into; for, though the machine will work, it can not think and, after a novice has worked with the apparatus for a month without the desired result, he is apt to shove the lamp in the corner claiming that the results obtained by others are psychic. Quartz-light therapy demands study and much of it and it is learned only by experience. One can not become proficient in a short time. Some try light-therapy and give it up because it is time consuming. Quartz-light therapy is not to be used by itself if anything else will assist in the amelioration of the condition. We must aid nature at all times. Light enhances the activity of the cells by increasing their metabolism. Light often acts as a synergistic agent. When the physical forces of nature have been experimented with in medicine, as they have been in the industrial world, it will be found that heat, light, air, water, motion and electricity, when properly employed, will aid man in his illness as much as they have helped the old sluggish production of the factory where things were hand-made. Once, we read by lamp light; now, we read by electric light. By means of new electric contrivances, we shall be able tomorrow to read what goes on inside of the body, much more clearly than we do today. The majority of the medical men are being daunted by the first failures of electricity in medicine. They are sheepishly following dictates that they have never proved for themselves. Often I am asked what I do for certain difficult affections and, should my answer mention the use of some physical force e. g. electricity—I am looked at askance and informed that the results are purely psychic. Usually I ask my questioner if he has tried it, and most display complete ignorance on the subject. How do you know of what you speak? I ask, and I receive in return the trite retort, that such and such an authority in medicine has used it and given it up. He was an authority on medicine, probably, but not in physical therapeutics. Physical forces must be used cautiously and wisely, and then the words of Pliny the Elder will be realized:

"Sol est remedorium maximum."

Note.—Figures 1 and 2 were taken from Morris and Dore: "Light and X-Ray Treatment of Skin Diseases," Chicago, Keener, 1907.

The X-Ray and the General Practitioner

BY JOHN H. CARPENTER, M.D., Chicago, Illinois

IT is the object of this paper to assist the general practitioner in the selection and proper preparation of cases sent to the x-ray laboratory, so that the best-possible results may be secured from this diagnostic and therapeutic measure, the value of which has come to be so generally recognized that failure to use it intelligently may subject the physician to criticism for neglect.

The radiograph is a representation of the various shadows cast upon the film by the difference in the density of the parts interposed between the x-ray tube and the film, and it may vary greatly in degree in different cases, depending upon the thickness of the parts rayed and, in individual cases, upon the quality of the ray employed and the length of time the part is exposed.

By regulating the tube, hard rays of short wave length, that will penetrate even a sheet of steel, may be obtained; or softer rays of longer wave length, that will hardly penetrate the soft tissues may be obtained from the same tube. By varying the tubes in this way, a radiograph can be made giving the proper amount of detail of much of the soft parts, or one that will show the structure and condition of the bones, detecting bone changes that would not be observed even if the bone were uncovered. Where the barium meal is used in examining the gastrointestinal tract, even more penetrating rays are employed. The softer rays and short exposures become of great value in examining the lungs, gall bladder, size and position of kidneys, liver, spleen and other organs giving only a faint shadow, each part demanding a different technic depending upon the results desired.

Radiograph and Fluoroscope

There are two methods employed in making a radiological examination:

1. The use of the x-ray film, or radiograph.
2. The fluoroscope.

Both have their advantages. Where observation of a part in motion is desired, the use of the fluoroscope is the method of choice. By this means, the movement of the heart may be

watched and, during forced breathing, the movement of the diaphragm should be observed closely for any fixation.

By filling the gastrointestinal tract with a substance opaque to the x-ray, as, a mixture of barium and malted milk, the movements, size, position and anything interfering with their filling or the free movement of the mixture may be readily observed. Thus, much of valuable data concerning the condition of the alimentary tract may be obtained.

The barium meal should be watched during its progress through the esophagus for filling defects or diverticula. In nervous patients, it is frequently necessary to differentiate between a spasm of the cardiac end of the esophagus and a stricture at that point.

Much information regarding probable malignancy or ulcers of the stomach and duodenum may also be obtained by means of the fluoroscope; but, this should always be considered in conjunction with what is shown by the radiograph. In watching the barium meal through the stomach and duodenum, conclusions regarding other parts, as the pancreas, gall bladder, etc., are obtained by their effect upon the position and condition of these parts. The ileum can not be observed as closely as the stomach or duodenum, because in health the barium passes through in finely divided portions. However, malposition or obstruction interfering with the normal rate of peristalsis can be readily seen.

It is not possible to get upon the fluoroscopic screen as complete an idea of the minute structure of the part as that shown by a radiograph. The fluoroscopic image shows the effect of a single x-ray flash upon the screen, while the radiograph records the effect of many of these flashes and is able in that way to give more complete detail, furnishing a permanent record that may be inspected by any one familiar with the subject.

Much time can be saved in examining the colon if an enema of the barium suspension is administered under observation with the fluoroscope. This is the method of choice in cases of suspected malignancy, adhesions, kinks or pressure of extrinsic tumors, etc., that interfere with the normal rate of peristalsis. This is also the best way of diagnosing an incompetent ileocecal valve. Information regarding the appendix is best obtained where the barium meal is given by mouth and an examination made later when the meal has reached that region.

Very nearly one hundred percent of calculi in the genitourinary tract and a large percentage of pathological gall-bladders may be shown on the radiograph, if the patient is properly prepared for the examination.

Preparation of Patient

As a general rule, all x-ray examinations of the trunk below the diaphragm should be preceded by catharsis, to reduce unnecessary and misleading densities, and followed by an enema to quiet peristalsis. Mineral salts as a cathartic are objectionable, as their use is followed by gas which gives a very mottled appearance. Castor oil or licorice powder should be used. Where the stomach and duodenum alone are to be examined, catharsis should be avoided because of the hyperperistalsis it produces. No preparation is needed here, except abstinence from food for several hours before the examination.

Stereoscopic Views

Stereoscopic views of the chest should always be taken where the condition of the lungs is in question; both exposures should be made at one holding of the breath, to be of any value in border line cases. When so taken, it is doubtless the method of choice in determining tuberculosis, pleurisy, collapsed lung, consolidations, cavity formation, emphysema, fibrosis, adhesions of the diaphragm, venous congestion of the lungs, and other conditions.

Stereoscopic views of the chest will also give much valuable information regarding the size, shape and position of the heart.

Foreign Bodies

Opaque foreign bodies in the lungs and digestive tract are readily demonstrated.

Foreign bodies in the extremities are best localized by taking two views at right angles to each other. When the radiograph is taken, some spot on the skin should be marked with iodine and a metallic substance placed over this marked spot, so that there may be some point from which accurate measurements may be taken when the patient is brought to the operating table. When the foreign body is located in some part of the trunk where it is not practical to take views at right angles, it becomes necessary to resort to some one of the various localizing devices used in such cases, most of which give excellent results, in a more or less complicated way.

Dressings containing metallic salts, as zinc-oxide adhesive, should be avoided where radiographs are to be taken, because several thicknesses of zinc-oxide adhesive will give as dense a shadow as a rib. Where it is necessary to strap a part, rubber adhesive without metallic

salts should be used. Metallic splints, other than aluminum should not be applied where x-ray examinations are to be made.

What Can Be Seen

Many causes of obscure pain are revealed when the ray is properly employed, as cervical rib, malformed vertebræ (particularly the 5th lumbar), mild bone changes, such as exostosis and metastatic infections of the bones.

Tumors of the brain, fracture of the skull, changes in the sella turcica, thinning of the skull from internal pressure, calcification of the pineal body, infection of the mastoid cells or of any of the sinuses of the head, opaque foreign bodies in the eye or skull are some of the important things to be determined by the use of the ray.

Of equal importance are the conditions disclosed by the x-ray in and around the mouth, the great density of the teeth coming out in contrast with the less opaque structures of the jaws. Variations in the shadows cast by these parts may be had by changing the penetrations of the ray and the time of exposure so that the structure of either the teeth or of the alveolar process may be studied. Some of the conditions readily shown are periapical abscess, unfilled root canals, pyorrhea, bone rarefaction from absorbed infection or systemic disease, unextracted roots, malposition of roots, absorption of roots, unerupted teeth and salivary calculus. Most of these conditions can be shown upon a film properly placed in the mouth, but some call for extraoral work.

Precautions Required

The results of the application of the ray are cumulative, so that the total dose received in two weeks has quite the same effect it would have if applied at one time; and, in the case of the x-ray operator receiving a small amount of the x-ray daily, this mild application may produce very grave results in the endocrine system without any superficial reaction. In the early days of radiology, this was not fully understood and many of the pioneers lost their lives before its seriousness was realized. No one who is habitually around an active x-ray tube should neglect taking advantage of every possible protective measure, such as enclosing the tube in a suitable shield opaque to the x-ray. As a further precaution, the operator should place a lead shield at least one-sixteenth inch in thickness between the tube and the position the operator occupies when operating the switches. Neglect of these precautions by those who operate x-ray appliances extensively will produce sterility. Many have lost their lives from the malignancies induced by excessive exposures to these destructive rays. All of these protective measures, if not carried to the full limit, simply act as filters blocking out the soft rays and allowing the more penetrating rays to pass, and it is these more penetrating rays which affect the deeper glandular structures. Most of the fatalities with the x-ray started before we understood what precautions were necessary, and there is little danger today if proper protection is used. With each improvement in the penetrating power of the rays produced, additional protection should be provided for the operator.

There is a general fear amongst the laity regarding x-ray burns. The patient should be given to understand that the x-ray is dangerous only in proportion to the skill with which it is applied and that the chances of injury from the x-ray, when applied by those competent to handle it, are far less than those encountered in the ordinary walks of life (as riding in an automobile or in any of the public conveyances).

Who Owns the X-Ray Film?

The ownership of the x-ray film has been a theme for considerable discussion, some contending that the radiologist, as a consultant, uses this as one of his methods of forming his opinions and as such it is his property and he is entitled to hold it for his protection in case his diagnosis is disputed. Some legal decisions have been handed down in support of this idea. The other side contend that, as the film was one of the diagnostic methods that the patient has paid for, he is entitled to the full benefit of it and should be allowed to have it passed upon by others if he so desires. In view of the fact that, often, the results of legal battles rest in a great measure upon these radiographic records of the conditions produced by an accident, it is claimed that the patient, as the one having the greatest interest in these legal proceedings, should be the custodian of his evidence.

Clearly, the radiologist avoids a great responsibility and saves in storage space and annoyance in cases where legal battles are staged, if the films properly marked for identification are turned over to the attending physician for disposal. For, after all, the radiologist is a consulting physician and does not have a permanent interest in the patient. Much tact is needed on the part of the operator in avoiding clashes, whichever method is employed, as both have points in their favor. In either case, the diagnosis should be given to the at-

tending physician *only*, and not to the patient, except by the attending physician or at his request.

Therapeutic Action

The therapeutic action of either the x-ray or radium is principally one of preventing cell division. The therapeutic value of the x-ray upon the deeper parts depends upon our ability to reach them without destruction of the overlying structures. Certain tissues, such as the skin and glandular structures, are more susceptible to the action of these rays than the other structures of the body; and embryonic tissues (as found in new growths arising from these structures) are more susceptible to the action of the rays than the adult tissue surrounding it. In the case of the skin, this has its advantages and disadvantages. There are very few pathological conditions of the skin that are not benefited by the application of these rays. The ease, with which skin lesions may be conquered with mild rays, has caused a demand for rays of greater penetrating power to produce similar effects on the deeper tissues. The constant improvement in appliances is fast meeting this demand. But, when we wish to treat conditions beneath the surface, the sensitiveness of the skin to the rays becomes a very important factor that must be considered in supplying sufficient dosage to the deeper structures without damage to the more superficial skin. This danger is in a great measure reduced by the judicious use of filters of aluminum, placed between the tube and the part treated, preventing the longer waves of short penetration from reaching the skin and yet allowing those of greater penetrating power to pass, so that the deeper structures receive nearly the same dose as the surface. Where application can be made from different angles, the desired dose may be delivered to the deeper parts.

The x-rays have a cumulative effect. No sensations are experienced at the time of exposure which, if moderate, may cause only a slight painless erythema followed by a mild desquamation. Should the exposure be of longer duration, there will be a bronzing of the skin varying in degree with the amount of the exposure.

In extreme cases, it may be necessary to give a dose sufficient to cause a more active inflammation of the skin. As yet, there remain some differences of opinion regarding the advisability of creating this reaction which, if properly measured, will consist of a slipping of the outer layer of the skin, healing in a short time without any scar. Where an excessive amount of the x-ray is administered and the condition known as "x-ray burn" is produced, there is a severe inflammatory condition, beginning a few days after the exposure and accompanied by an intense burning pain. This is followed by a cellular death of most of the structures involved, the nerves being the principal tissue not so destroyed. Owing to the incomplete destruction of the part, it does not readily separate from the other tissues and is very slow to heal.

These reactions do not occur at the time the rays are applied, but follow in from three days to two weeks, depending upon the amount of the exposure. Owing to this delayed reaction, it is very important that the operator be informed of any previous applications the patient has received, with accurate data regarding time and dosage. No one should be trusted with this important work who does not keep a complete record of all cases treated.

Oft-repeated mild doses have primarily a stimulating effect upon the part exposed. This effect is desirable in the treatment of some cases where there is an infection present, as adenitis, hypertrophic adenoids, thyroids, tonsils or prostate, recurrent boils, carbuncles and infectious bone pathology; but, because of this stimulating effect, mild dosage is undesirable in treating malignacy and a definite destructive dose should be administered. The dose should be one that will at least have the effect of impairing the vitality of these rapidly multiplying cells. This same principle may be employed to prevent cell division in the gonads, when it is desired to produce sterility.

All cases operated on for malignancy should be subjected to thorough *pre* as well as *post*-operative irradiation.

Much Still to be Learned

Experience has shown us that there are some effects from the application of the ray that we can not fully explain, such as the relief of painful conditions present in neuritis and the relief of a large part of the pain and odor of incurable malignant conditions.

X-rays and radium rays are both composed of combinations of *alpha*, *beta*, and *gamma* rays, which are waves of different lengths and vary in their ability to penetrate the tissues of the body. There are many reasons why the use of radium for radiographic and fluoroscopic work is not practical. By the use of various filters which block out part of the undesirable rays, the difference in the combination of wave lengths of radium and x-ray is greatly reduced

and they become valuable therapeutic agents. The choice between them becomes a question of the ability of the operator to reach the part to be treated and his individual opinion regarding their different merits. Where the part to be treated is deep-seated and radium can be applied in direct contact with the part, as in a malignant uterus, there are decided advantages in the use of radium for its local action. But, where the part can be easily reached, as upon or near the surface, the x-ray has a great many advantages.

The Trained Radiologist

As the use of the x-ray becomes more universal, many with a slight technical training have taken advantage of the shortage of trained operators. In some instances, persons with no medical education have presumed to render diagnosis.

There is a place for the x-ray technician similar to that of the druggist. The busy physician has not the time to compound the drugs he prescribes, and this is left to persons who are skilled in this line, to act under his direction; but the druggist is not a skilled diagnostician and does not attempt to impose his diagnosis upon the physician. He works under his instruction. The x-ray technician has a legitimate field, working under a specially trained physician. The radiologist of today should be considered as a consulting physician and as such should have special training for his work, the value of which is contingent upon the accuracy of the diagnosis. A great deal of his ability in this line depends upon his knowing exactly the position of the patient when the exposure was made, and the intensity of the ray used, as well as the length of the exposure, since all of these must be considered when the film is examined. It becomes imperative that he have under his control, these factors of technic, if the best results are to be hoped for. Laws have been passed limiting the practice of medicine to those having proper qualifications, and any physician who intrusts the most important factor of diagnosis to an unskilled layman, is at least encouraging in his patient disrespect for the very laws that are his greatest protection.

When the film is taken, some mark should be photographed upon it, such as the placing of a lead number with the radiologist's trade mark, made of opaque material, so that its shadow becomes a part of the film. This number should also be placed upon a permanent record of the findings, so that it may become available at any time should necessity arise. It is well that the attending physician also keep a record of this number of the film, together with his report received from the radiologist, for future reference.

Electricity and Its Uses for the Scientific Treatment of Ailing Feet

By CHARLES CROSS, M. D., San Francisco, California.

IN the nonsurgical orthopedic methods of treatment to relieve or prevent foot ailments, the scientific application of electricity, as a physiotherapy accessory, has a place of great importance. In fact, it has a place of so much greater importance than has ever been given to it that this short paper and chart are submitted for publication with the hope of stimulating a further study of the various methods to treat and prevent foot ailments.

It is only since the World War that *Feet* have almost insidiously crept in on the attention of the medical profession to claim even a slight degree of scientific consideration. It appears to be the habit of many colleagues never to go below the knee for diagnosis. As a pioneer in the study of this terra incognita, for many years before the World War, and as a teacher of medical and other officers during the war, and to medical graduates since returning to a civilian status, I believe that the feet are so very necessary, that we should, in the future, devote to them far more scientific attention than in the past.

Preventable and efficiency-reducing foot ailments are now attracting more attention than ever before; therefore, this short paper and chart. Much more might be added, as the entire subject is not covered. But, if those who try to prevent foot ailments will learn to apply the modalities suggested, and get the results desired, they may be stimulated to tell in short papers some improvements that their experience suggests, and also what can be done without metal plates

Ailing Feet Neglected by Physicians

The subject of the scientific treatment

Pathology	Symptoms and Location	Object of Treatment	Modality
Adhesions	Restricted Action — Ankle, Tarsal, Metatarsal, Phalangeal	To soften adhesions and hasten absorption of plastic exudate, and prepare the area for application of the bloodless surgery technique to break up adhesions.	Galvanism — For Comfort — (Always Test Polarity)
Callous Discrete Mass Inflamed Ulcerated	Burning or Pain Under A. M. A. Inner Border Great Toe Around Heel and other Friction Points	Removal of Callus after the cause is eliminated	Galvanism — For Comfort — (Always Test Polarity)
Pain	Pain on Pressure P. C.—P. W. P. P.R.N. — In Any Area	Relief and Inhibition to Prevent Pain	Rapid Sinusoidal — (No Polarity) — For Comfort
Broken Arch Flat Foot Weak Foot Turning Ankles Accessory to other treatment for rebuilding	Pain Referred Pain Burning Reduced Efficiency Internal Longitudinal Arch External Longitudinal Arch Anterior Metatarsal Arch Ankle Valgus or Calcis Malalignment	To Rebuild Arches Prevent Flat Feet Strengthen Weak Feet and Strengthen Weak Ankles	Slow Sinusoidal — (No Polarity)

of ailing feet, and the pioneer efforts to prevent foot ailments, need no apology. It is a subject not taught in medical colleges, and medical literature has little that is practicable to say about it. Almost every medical graduate has in his own family ample

Technic of Application	Duration of Each Treatment	Frequency of Treatments	Course of Treatments	Object of Course Treatments
Negative Electrode moist with NaCl Sol. and applied over area of adhesions Positive or Neutral Electrode applied over the Sacrum	15 to 20 Minutes	Daily 5 Times a Week — Then Bi-Weekly or Tri-Weekly for One to Two Months	2 Weeks — 1 to 2 Months	To Soften and Hasten Absorption of Plastic Exudate and Permit Breaking Up of Adhesions. Replacement of Displaced or Distorted Osseous Structure.
Negative Electrode moist with NaCl Sol. and applied over area of adhesions Positive or Neutral Electrode applied over the Sacrum	15 to 20 Minutes	Daily 5 Times a Week — Then Bi-Weekly or Tri-Weekly for One to Two Months	2 Weeks — 1 to 2 Months	To Soften and Hasten Absorption of Callus When Cause is Removed.
Apply one Electrode moist with NaCl Sol. over and under painful area, and the other over sacrum, a neutral point.	15 to 20 Minutes	Daily 5 Times a Week — Then Bi-Weekly or Tri-Weekly for One to Two Months	2 Weeks — 1 to 2 Months	Relief from Pain and to Prevent Pain.
Moisten Electrodes of proper size and shape with NaCl Sol. and apply one over area to be treated. Apply pad from other post to sacrum, or neutral point (C). Other treatment is to locate motor points on legs and apply current to tone up individual groups of muscles.	5 to 15 Minutes	Daily 5 Times a Week — Then Bi-Weekly or Tri-Weekly for One to Two Months	2 Weeks — 1 to 2 Months	Tone Up and Strengthen Muscles and Aid Other Accessory Treatment.

clinical material upon which to begin his studies. Even if he does not intend to treat feet in practice or to become a non-surgical orthopedic specialist, at least a speaking acquaintance should be cultivated with such an important part of the body.

Before perusing the accompanying chart, let it here be said that my knowledge of electricity is limited. Electricity is a very large subject and, in looking into it for the treatment of feet, I have consulted a large number of authorities and colleagues. As the result of a very fortunate association with Dr. Charles L. Ireland, of Columbus, Ohio, I had ample opportunity to check up the modalities listed in this chart.

The chart is offered as a foundation to build upon.

In his army service at the Walter Reed Hospital, Washington, D. C., Dr. Ireland demonstrated and taught medical officers, and trained many aids in the scientific application of electricity and physiotherapeutic methods of reconstruction and rehabilitation of disabled soldiers. His report of that work to the Surgeon General is said to be one of the most masterly and scientific reports made in the medical service of the war. Because of his excellent record, Dr. Ireland has been recalled to serve in the recently formed United States Veteran Bureau. His new duties give him supervision over the application of physiotherapy in a large number of states.

In conclusion, let it be remembered that in the treatment of ailing feet, the rebuilding of broken arches, and in the application of prophylactic measures to prevent foot ailments in children, the application of electricity must be agreeable and comfortable to the patient. In fact, all treatments of the feet to patients of all ages must be comfortable and agreeable, otherwise more harm than good may result.

As graphic charts can be readily referred to, to refresh the memory, the accompanying chart is submitted with the hope that it may prove as useful to others as it has proved to me. It is also hoped that it may stimulate colleagues to be on the lookout for beginning foot ailments in children. Most of the foot ailments which have their beginning in childhood can, and should, be prevented. Therefore, the prevention of foot ailments is a prophylactic service which should interest every physician and parent, and the scientific application of electricity is a most valuable physiotherapeutic accessory to treatment.

Electricity Produces Hundreds of Unknown Therapeutic Effects

When Applied by a Discriminating Technician

By JOSEPH E. G. WADDINGTON, M.D., C.M., Detroit, Michigan

I CAN NOT better preface my remarks concerning that much abused subject, "Electrotherapy," than by quoting the following paragraph, taken verbatim from the recent edition of Lewis Jones' "Medical Electricity." He says: "It is unnecessary to consider any mysterious 'vital' effects of electricity, nor need we waste time over the notion that electricity cures through its effects upon the imagination. It is true that cures can be wrought in functional disorders by making use of electricity to terrify or to hurt, or in some other way to impress the minds of the subjects to whom such applications are given, but all that kind of business occupies a place apart from the genuine practice of electrotherapeutics, which is based solely upon chemical and physical considerations, and does not require the assistance of the imagination of the patient."

Now, it is axiomatic that only he who is thoroughly conversant with his subject, theoretically and practically, is qualified to express an authoritative opinion upon it. To understand the difference between a scalpel and a bistoury, combined with the courage to cut, does not constitute a surgeon, neither does the elementary, though essential, knowledge that one or the other end of a galvanic current represents a positive and a negative pole respectively, combined with a willingness to apply the current, constitute an electrotherapist.

An electrotherapist should have a well-grounded knowledge of all the elementary principles governing electricity and its application to electrotherapeutics. Diagnostic acumen and

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experience, not alone in electrotherapy but initially in general practice, are also essentials to success. An electrotherapist need not necessarily be an expert, for the general practitioner who may use but one modality, is an electrotherapist, if he uses it understandingly. But, the more modalities he understands and intelligently applies, the better an electrotherapist he will become.

Elementary Points

The galvanic current is emphatically the modality with which to commence one's electrotherapeutic education and, no matter how many modalities one may later become acquainted with, each and all of which will have value in more or less indicated conditions, the galvanic current will be the one modality more often indicated and more generally relied upon.

Before buying any electrical apparatus, first read at least one recent standard book on electrotherapy, and then, upon acquiring the apparatus, be it what it may, experiment as much as possible upon yourself prior to treating your first patient. You will thereby quickly and easily acquire some slight experience and thus in all probability save yourself some future embarrassment and the loss of otherwise valuable patronage.

Never dispute a patient's statement that the current is "too strong" or painful, even though the meter may only register a negligible amount of current or the switch or controlling mechanism may apparently indicate that the patient is getting an amount of current utterly incapable of being termed "too strong." At once turn off the current, whatever the modality employed, and investigate the electrode. Possibly, the contact is imperfect, thereby causing an irregular conduction of current, or a metal cord tip or a metal electrode imperfectly covered, may be contacting with the skin. A possible source of trouble, when employing conducting cords such as are used with the galvanic and sinusoidal modalities, is a broken strand of wire which, owing to the concealing insulation, is not perceptible to the eye; and only careful investigation of the cord will discover this annoying cause of a fluctuating and painful current. An imperfectly moistened sponge electrode, or one of uneven density or covering will give disagreeable and even serious results when employing a thermofaradic or diathermy current.

A vacuum electrode, unless kept in close contact with the parts, will cause a burn on mucous surfaces, not always warningly appreciable to the patient at the time.

The Galvanic Current

We will now commence with the galvanic current: A patient presents with a stiff neck, a temporary torticollis arising from exposure to draughts. Here is a pathological entity concerning which no amount of imagination or Christian-Science teaching can persuade the patient to believe otherwise than that he is suffering pain and more or less inability to move his neck.

The positive electrode, consisting of a thick pad, is applied snugly to the neck and the negative electrode over the chest. Fifteen to twenty m. a. are given for ten or fifteen minutes and that patient will then arise and tell you that the pain is considerably lessened and will demonstrate that he can now move his neck more freely. According to the duration and severity of the condition, treatments may be repeated daily or every other day, a simple case being entirely relieved with two or three treatments.

Lumbago can be invariably relieved by applying the positive pole to the affected area and the negative over the abdomen, using thirty to fifty m. a. for ten to twenty minutes. A rapid sine current for ten minutes will enhance the value of the treatment. Myalgia, wherever existent, is just as amenable to the foregoing technic, grading the amount and duration of current to the size of electrodes and the sensitiveness of the patient. No inflexible rule can be given, but there are several important factors to remember in applying the galvanic current, and in the employment of other currents also, which factors spell either success or failure according to whether said factors receive proper attention or not.

The ordinary spongiopiline pad electrode usually furnished by electrical-apparatus manufacturers will not enable you to give satisfactory treatment. Its use will cause an unbearable burning sensation long before adequate current has been applied, and, as Dr. Grubbe, of the now unfortunately defunct Illinois School of Electrotherapeutics, was so fond of reminding us, sample treatments whether of x-ray or other modalities are worse than useless. The pad electrode must be thick and soft enough to adjust itself snugly and evenly to the affected area. It should be as large as the area to be treated will conveniently accommodate and the indifferent electrode should, if practicable, be considerably larger than the active, so as to reduce current action to a minimum where only required for contact purpose. Pads should be thoroughly soaked in

hot, not lukewarm, water, and the current should be turned on slowly but steadily until the desired or tolerable amount of current has been obtained. If the electrodes are placed upon the anterior part of the body as contrasted with the posterior portions, where the weight of the body or a limb tend to keep them in close contact with the skin, the patient should be instructed to press evenly and firmly upon the electrodes, thereby insuring more current and with less sensation. A one-inch rubber bandage is very convenient for holding electrodes firmly in place, especially upon the limbs and around the neck and head. Sand bags of various sizes and weights are also useful in some cases.

Stiffened and painful joints, so often the sequelæ to some unrestricted muscular movement or to direct trauma, can be relieved and quite often restored to normal by applying pads to each side of the joint and connecting them to the positive pole by means of a bifurcated cord, the negative electrode being placed at the distal extremities or any other convenient part. Give fifteen to twenty-five m.a. for ten minutes and repeat every other day. In more obstinate conditions and especially where there is a socalled "rheumatic" history relating to these impaired joints, the pads over the joints should be soaked in a 4-percent solution of sodium salicylate and connected to the negative pole; twenty to thirty minutes' treatments should be given with a current as strong as can be comfortably endured and treatments given three times a week. On alternate days, a high-frequency current given through a condensing body electrode, grounding the opposite side of the joint, will aid considerably in hastening the desired results.

Illustrative Cases

A gentleman, aged 74, fell from a height of 12 feet upon his back and, in consequence, was confined to his bed for three months. X-ray examination revealed nothing abnormal; but six months after the injury the patient still complained of weakness and constant subacute pain in the region of the lower lumbar vertebræ, this region being especially sensitive to pressure. One treatment with 30 m.a. for 20 minutes, positive pole to the affected area, negative over the abdomen, gave him such relief that he agilely skipped through the waiting room voicing his joyous gratitude to the waiting patients. Treatments were repeated daily at first and then every other day, with ultimate permanent relief.

A lady came to the office with a history of chronic constipation, no rectal distress until 3 weeks prior to her visit, when she first noticed blood in the stool. The hemorrhage had now become profuse and she experienced considerable pain upon defecation. Examination revealed a profusely oozing large internal hemorrhoid upon the posterior anal quadrant and also showed a medium-sized internal hemorrhoid on the anterior quadrant. A copper rectal electrode, covered with chamois skin, was inserted, attached to the positive pole, and 5 m.a. given for 5 minutes. In two days, the patient returned stating that the bleeding had been considerably lessened, with no reactionary pain from the treatment. 8 m.a. were then given for 8 minutes and, at the next visit, 10 m.a. for 10 minutes. At that time, patient stated that there had been no bleeding subsequent to the second treatment. Treatments were continued twice weekly for a month and a very grateful patient was then dismissed.

Now, all hemorrhoids can not be cured by electricity, but bleeding can be invariably controlled while simple non-indurated hemorrhoids can be thus satisfactorily disposed of.

In Neurasthenia, Brainfag, Headache, Etc.

For neurasthenics, that class of patients of which careful examination reveals nothing objectively pathological but whose subjective symptoms, as reflected through the patients' mentality and vocalization, are as numerous and varied as the list of Homer's ships, a suitable high-frequency current will achieve results not otherwise to be attained. High frequency is indicated in all classes of nervous instability and will soothe the most erratic through its stabilizing effect as an equalizer of nervous force. If the blood pressure be high, an autocondensation current should be used; but, if the blood pressure be low, an autocondensation current is emphatically contraindicated. In either case, a high-frequency current given through a condensing body electrode can be used to splendid effect; the patient lying prone, with a flexible tin electrode grounded over the solar plexus and the body electrode slowly promenaded the full length of the spinal column, extending the application to a few inches on each side of the vertebral prominences. If the blood pressure be low, a decidedly stimulant effect may be induced by interposing two or more thicknesses of gauze between the spine and electrode; otherwise the application should be given in close contact with the skin. Apply the current for 10 minutes and then reverse the patient, grounding the dorsal region and contacting the electrode over the region of the liver, intestines, and solar plexus for another 10 minutes. If the chest be affected, an application should be made over this region and ozone inhalations given daily.

For the tired, overworked business man or society lady, this technic, or some modifications thereof, will give instant relief.

Headache may be only a symptom; but it is

often a difficult one to trace back to its predisposing cause. Whatever the cause, ground the nape of the neck and connect the high-frequency current to a small condensing body electrode, applying over the forehead and closed eyes for 20 minutes, and relief will inevitably ensue. Incidentally, a local application will wonderfully strengthen tired and weak eyes not always relieved even by well fitted glasses.

An occluded eustachian tube, so commonly the result of a nasopharyngeal catarrh, can often be painlessly opened by grounding the opposite ear and inserting an insulated aural vacuum electrode into the other ear; give 15 minutes' high-frequency current, daily until relieved and then every other day until cured. The same technic is excellent for tinnitus aurium or other subjective aural symptoms.

Electrotherapy in Gynecology

The gynecologist who believes in first endeavoring to remove the cause, before removing an organ with the cause, will obtain many otherwise unknown therapeutic effects from the judicious application of electrotherapy. A high-frequency current administered through a vaginal vacuum electrode, the abdomen being grounded (seven-minute treatments given every other day, alternated with the galvanic current applied through a cotton covered copper vaginal electrode, positive pole, twenty to fifty m.a. for 10 minutes) will relieve pain and reduce chronic and subacute inflammation in the immediate and contiguous pelvic region. The negative should be a large thick pad over the abdomen or lumbar region according to whether the affected area be anterior or posterior to the active electrode. Leucorrhea, as a symptom of impaired tone due to circulatory disturbance, is more amenable, and often brilliantly so, to the foregoing technic than to all the variously medicated tamponades so usually given and so usually devoid of even temporary alleviating effect. Mucous colitis is a pathological condition not very amenable to even the best of medical or surgical treatment; but, if large, flexible tin electrodes are placed, the one over the upper left abdominal quadrant, the other just opposite on the back, and connected to the diathermy current, giving twenty to thirty minute treatments every other day, an otherwise intractable condition will often clear up.

A slow sinusoidal current, 10 interruptions to the minute, is excellent treatment following the removal of splints from fractured limbs. It overcomes circulatory stasis and relieves undue sensations, thereby more rapidly restoring the limb to normal.

Monell, in "High Frequency Currents in Medicine and Dentistry," concisely reviews the tonic properties of high-frequency electric currents as follows:

"Taking high-frequency currents in their entirety and their various modes of administration, we have in them a powerful tonic to all nerve cells, nerve centers, nerve endings, and nerve functions, both of the sympathetic and cerebrospinal nervous systems and the nutritive energies of the trophic nerves; a potent tonic to the tonicity of muscle fibers, the walls of blood vessels, the force of the heart, the peripheral blood pressure, the functions of vasomotors, capillaries and veins; an ozonizing tonic to the blood, to the red cell pigment, . . . a tonic to the energies of respiration, . . . a tonic to the functional activity of the lymph vessels and absorbents; a tonic to the secretions of glands and the excretory functions of all the organs of the body from liver and kidneys to skin; . . . a tonic to appetite . . . and to the elementary processes of metabolism, and physiologic stimulus to the living human machine."

In conclusion, in the before-mentioned technic, it is naturally understood that all other indicated measures, hygienic, medical, or even surgical, are to be employed, and that electrotherapy, like any other therapy, will not cure everything nor always cure the same apparent conditions. The greater the experience, however, and the more intelligently and perseveringly electrotherapy is used, the greater and more satisfactory will be the results obtained.

Practical Experiences With Nonspecific Protein Therapy

By J. F. BIEHN, M.D., Chicago, Illinois

THERE has arisen, during the last few years, as a result of clinical observation, a realization that immunization is not always strictly specific, as we are wont to believe. Careful observers, in many instances, have noted that specific immunization for a certain infection, or even a concurrent infection, often resulted in the cure of some disease-condition.

This collateral, indirect, or nonspecific immunization has been recognized for many years. However, specific immunity being the accepted scientific thought of the day, coupled with the fact that our present theory of immunity did not admit the explanation of anything except specific immunization, it naturally followed that the clinical results noted were not carefully considered. Wright himself says that we believed only in direct immunization and placed little or no weight upon reports of collateral immunization, although these were brought to his attention, a number of years ago, by the Indian Plague Commission who reported that, as a result of antiplague immunization, a number of cases of eczema, gonorrhea, and so forth, had been cured. It was not, however, until Wright's experience with antipneumococcus inoculation in the Transvaal Mines showed, in addition to a reduction of eighty-five percent in the mortality from pneumonia (much to his surprise), a reduction of fifty percent in the mortality from other diseases that he considered it of value and worthy of investigation.

Nonspecific Protein Immunization Successful

The use of "nonspecific proteins" in the treatment of disease is being studied with renewed interest because of the splendid results being obtained with this method of treatment. A large number of articles have appeared in medical literature, particularly in Europe, and the method is attracting considerable attention in this country.

The idea, of course, is not a new one. The principle underlying this form of therapy is familiar to every user of bacterial vaccines, i.e., the stimulation of the defensive powers of the organism by the injection of a foreign protein.

But, instead of employing a specific protein, in the form of killed organisms of the type responsible for the disease, other substances are administered; for instance, typhoid vaccine has been given in cases of rheumatism.

At first, the accepted method was that of intravenous injection of a nonspecific protein, commonly typhoid bacterin. This resulted usually in severe shock accompanied by chill and fever. The substances used were highly toxic and all observers warned that it was not a method for the general practitioner to employ and that it should not be utilized outside of the hospital. The severe shock, accompanied by marked chill and fever, was considered essential in this form of treatment. It was not until Schmidt and Saxl (1916) introduced the intramuscular injection of milk that nonspecific protein therapy became universally available. Numerous other substances have also been used, but the milk proteins seem to be least open to objection and to have met with the greatest favor. Several preparations of milk proteins are available.

The reports of Schmidt and Saxl were closely followed by those of Bruch, Müller and Weiss, who commented favorably upon this method, particularly dwelling upon the ease of administration and upon its comparative safety. They replaced the intravenous injection of the highly toxic typhoid bacterin by the intramuscular injection of 5 to 10 (or more) Cc. of sterile, toxin-free milk, either intragluteally or into the muscles of the arm or back. This treatment is very rarely followed by a chill. There is usually, however, a typical rise in temperature, reaching its maximum in six to eight hours and subsiding in twenty-four hours. At present, observations point to this temperature rise as probably being essential for benefit. A marked leucocytosis usually results. Shock is not necessary. Repeated injections may increase the reaction somewhat. There is relatively little danger of sensitization, or anaphylactic shock.

The Question of Shock

In a series of several thousands of cases reported, very few cases of shock have been encountered. These have been reviewed by Sachs and Oppenheim. After intramuscular milk injections, the rigor commences within six or eight hours and varies from a mere twitching of the muscles to (in exceedingly rare cases) a definite chill. These symptoms rarely persist for more than fifteen to thirty minutes and are frequently followed by some sweating and, occasionally, slight frontal headache. A temperature rise rarely persists more than twenty-four or forty-eight hours. Blood pressure is not affected. In normal individuals, there is no temperature rise or other effect. The reaction is apparently independent of the dosage (according to Schmidt), but depends upon the patient and the type of disease, arthritis cases usually showing a rise of 2° to 3° F. Typhoid or tuberculosis cases may show a rise of 5° F. He reports numerous cases of pneumonia, showing a temperature of 103°, in which there was no increase in temperature but, after some hours, a steady decline.

Nonspecific Protein Stimulation Explains Many Observations

It has been shown by careful investigation

that a number of agents or methods of treatment, some of which have been in constant use for many years, depend for their action upon nonspecific-protein stimulation. Among these may be mentioned counterirritation, blistering and use of the cautery; also the injection of normal and convalescent serums, proteins and protein-split products, organotherapy and various tissue extracts, polyvalent bacterins, bacterial autolysates and toxins, colloidal metals, and so forth. The use of milk in the form of sterile skim milk (obtained as aseptically as possible from tuberculin-tested cows and sterilized immediately in order that it shall be as free as possible from toxins, either soluble or endotoxins, from contained bacteria) is preferable to various other methods above mentioned. This has been amply proven by the experiences reported in the last few years. The particular value of milk may be accounted for by the fact that casein is rapidly split and hydrolyzed by the erepsin which is contained in all tissue fluids. Further, Riedel has shown that the split products derived from casein, the monoamins and diamins, are powerful tissue activators.

Indications

From the reports in the literature, milk preparations have been used in a great variety of diseases, both acute and chronic, such as influenza, pneumonia, typhoid, chronic gonorrhea and its complications, arthritis, neuritis, and so forth. The favorable results obtained would indicate their value in a certain class of cases, especially those not amenable to specific immunization by graded doses. Many of these are rapidly cured by nonspecific therapy. The best results are usually obtained in sluggish cases accompanied by low or moderate fever.

Contraindications

In all cases, there is produced more or less of a focal reaction. The site of the lesion shows a more acute character evidenced by pain, tenderness and hyperemia. This rapidly lessens and may even progress to a complete cure. However, it can be readily seen that such a focal reaction, if intense, may be highly undesirable in certain diseases, especially in pulmonary tuberculosis. Therefore, this method of treatment must be used with great care in these cases. Practically, the reaction is identical with that produced by the injection of tuberculin and carries the same possibilities for benefit and harm. Chronic kidney disease apparently is not a contraindication. Uddgren reports 100 cases of milk injections, without kidney irritation, notwithstanding the most careful observation. Traces of albumin were occasionally found but were shown to be not pathological, merely excreted milk albumin. Döllken and Schmidt have shown that, during an acute illness, with casts and albumin in the urine, these cleared up rapidly after nonspecific therapy.

Dosage

The dose for intramuscular injection usually recommended is 5, 10 or 20 Cc. depending upon the vigor of the patient, the type of the infection and the stage of the disease; vigorous patients requiring larger doses. As a rule, the second injection should be given after the expiration of the local reaction and when a fall in the leucocyte count occurs; that is, in about two to five days.

An overdose, while possible, is extremely rare in the literature reports (as much as 50 Cc. having been given daily for a period of six to eight days) and is indicated by shock, dyspnea, cyanosis and diarrhea. Usually it is the result of intravenous instead of intramuscular injections. It is advisable, therefore, in making intramuscular injections, to use an all-glass syringe and, after inserting the needle, attempt to withdraw the plunger. If a blood vessel has been entered, a small amount of blood will show in the syringe.

Mode of Action

Our present theory of immunity and resistance to disease does not adequately explain the remarkable clinical results noted in this form of therapy. The favorable results have been ascribed by various observers in leucocytosis, rapid mobilization of antibodies, stimulation of the nonspecific ferments of the serum (protease and lipase) and to alteration in the ferment (antiferment titer). There also has been noted an increase in the number of red blood corpuscles, in cases of anemia.

The matter is as yet undecided. None of these factors alone or in combination seem to afford a satisfactory explanation for the remarkable results obtained.

Through the nonspecific irritation, the immunizing power of the bone marrow is stimulated. This becomes noticeable by a formation of new granular neutrophile leucocytes, an increase of the defensive substances in the system, which are distributed to all infected areas throughout the entire organism. These defensive substances initiate a healing process or augment such a process already in existence.

It is, therefore, of importance that the defensive processes, the intensity of which may be observed by the intensity of the local reaction, never exceed the required measure. The injection of protein does not influence the affected area directly but acts only upon the myeloic system, the immunizing function of which it stimulates according to the degree and character of the infection present and the reactive ability of the patient's cells.

By means of this stimulation, caused by intramuscular protein injection, nonspecific in itself, it is possible to spontaneously increase the specific defensive power of the system to the highest physiologic degree—at a much earlier period than would be the case if the disease were to take its course. This fact makes it essential that the treatment be started at the earliest possible period, in order that the maximum defensive power may be therapeutically developed while the action of the disease producer is yet weak and possible to overcome.

The myeloic action of milk injections may be observed on the red blood corpuscles only in cases where the oxygenating function is below normal; in such cases there follows an increase in the number of the red blood corpuscles.

Review of Literature

Usually, remarkable results have been obtained in many cases of recent multiple arthritis. Müller and Weiss, using milk injections alone, and Edelmann alternately milk injections and salicylates, report results which virtually assure success in nearly every case.

Zimmer claims that the most favorable results are produced following a strong focal associated with a relatively mild general reaction.

The idea of alternating milk injections and salicylate medication seems particularly favorable for use in these cases. There is evidence to the effect that the milk injections augment the value of the salicylates, particularly in cases in which salicylate medication alone fails, producing only temporary relief and which is followed by relapse.

Protein therapy has been recommended for the treatment of arthritis, particularly when this is of gonorrheal origin. Favorable results were reported by A. Geronne. (*Allgem. Med. Ztrlzt.*, 1921, No. 22) and by Fritz Munk (*Deut. Med. Woch.*, 1921, No. 5). Edelmann employed a milk-protein solution in association with salicylates. H. Patschkowski (*Münch. Med. Woch.*, 1919, LXVI, 531) also reported splendid results in acute and chronic arthritis.

E. F. Müller (*Deut. Med. Woch.*, 1919, No. 12) declares that the injection of albumin bodies, which stimulate the formation of leucocytes, has no effect on red blood cells if they are found in normal numbers, i.e., 4.5 million per Cc.

In cases of anemia, however, the number of red blood corpuscles can be increased as high as 1,000,000 per Cc, twenty-four hours after injection of milk proteins.

Doctor Müller has observed this fact in 8 cases of anemia and ascribes hematogenic properties to milk. He also advises its use therapeutically in cases of secondary anemia.

Dr. R. von Jaschke (*Gynäk. Congress*, Berlin, 1920) employed this treatment in cases of parametritis, in which infiltrations, the size of hen's eggs, were absorbed and disappeared completely within fourteen days after treatment. He also obtained favorable results in genital and peritoneal tuberculosis, although most investigators believe the treatment contraindicated in tuberculosis.

Dr. P. Esch (*Ztrlbl. f. Gyn.*, 1920, No. 22) concludes from his observation on the applic-cation of organotherapy, that its main effect depends upon its nonspecific general influence upon the organism. On these grounds, he treated menstrual disorders, such as menorrhagia and other gynecologic ailments by parenterial injections of milk. He obtained good results. It is noteworthy, that the general condition of the patient, as a rule, improved after the injections were given.

Dr. Hans Förster (*Therap. Monatsh.*, April 1921) treated 26 cases. The average number of injections required for cure was four to six.

Dr. H. Krösl, in an article on the use of milk proteins in dermatologic practice, contributed to the *Therapie der Gegenwart* (Sept., 1921), speaks very highly of the results obtained in bubo and ulcus molle, and lays particular emphasis on the fact that the pain is decreased and patients are able to continue their occupation while under treatment. He believes this form of therapy indicated particularly in cutaneous and venereal practice—in furuncles, carbuncles, abscesses, bubos, and infectious diseases of the skin. He likewise reported the cure of a case of purpura hemorrhagica in a patient who was receiving milk protein injections for the treatment of gonorrhea.

In the course of experimentation with milk injections in the treatment of syphilis, Josef Guszmann (*Dermatol. Woch.*, 1918, No. 48, p. 808) has tried its use in cases of soft chancre. He based his treatments on the observation made upon one case of ulcus molle serpiginosum, which for years did not yield to any sort of treatment, but underwent almost a spontaneous cure after the patient developed erysipelas. He came to the conclusion that the cure followed, not on account of erysipelas being a disease process, but because of the accompanying high fever which made the overheated skin in the proximity of the chancre an uncomfortable habitat for the streptobacillus of Ducré.

Milk injections also call forth a high fever reaction, which has proven itself to be a decided curative agent. Guszmann cites cases where the soft chancre disappeared after one injection. The most obstinate of them yield to the treatment within two to six days after two injections, without any local treatment whatever.

Berndt (*Med. Klinik*, 1921) treated 30 cases of soft chancre. He recommends this treat-

ment particularly for lesions so located as to make topical applications difficult. Ulcers were rendered painless after one injection, and a large number were cured in two to three injections, without local treatment.

Müller reports 25 cases, 24 of which were cured without incision. 5 to 6 Cc. of milk were given every three or four days. Injection was followed by a focal reaction in eight to nine hours. This, however, was then usually followed by a marked analgesia. Early cases rarely required more than three or four injections.

M. Trossarello (*Riforma Medica*, 1920, XXXVI, 350) reports marked success with milk injections in these cases. In 15 early cases, the disease was practically aborted.

Gonorrhea and Complications

Dr. E. F. Müller (*Med. Klin.*, 1920, XXVI, 579), who has done a great deal of experimental work with the milk antigens, has reported favorable results in gonorrheal urethritis. For this purpose, he prefers very small subcutaneous injections rather than the intramuscular.

Dr. Hans Müller (*Münch. Med. Woch.*, Aug. 6, 1920) reports remarkable improvement in 3 cases of gonorrheal urethritis in which he was giving injections of a milk antigen for trichophytosis from which they were likewise suffering.

Dr. H. Heineman and K. Wilke (*Münch. Med. Woch.*, No. 5, 1921) treated gonorrheal ophthalmia in adults with remarkable results. No complications developed in the series of cases, and the swelling and secretion were reduced. Two to four intramuscular injections of small doses brought about decided improvement.

Langer (*Med. Klinik*, 17, 1921) found that the initial stages of epididymitis responded exceptionally well to injections of milk albumin.

Acute Gonorrhea

Kraus reports 20 cases in which from 5 to 8 Cc. of milk were given with no apparent benefit. A number of other observers also failed to obtain results in acute gonorrheal urethritis.

Müller and Weiss inject 5 to 10 Cc., both intragluteally and locally into the scrotal skin, and report excellent results in epididymitis. Sandek obtained splendid results in 100 cases of gonorrheal complications by means of local milk injections, and reports the analgesia following the injections was astonishing.

Milk injections may be utilized for the production of provocative reaction.

Six to eight hours following injection there is an increased discharge in which gonococci may be more readily found. This method has been used by Nevermann in women, with marked success.

The general consensus of opinion is that nonspecific therapy is of decided usefulness in local or remote complications of gonorrhea, but that it is of no value in acute local urethritis.

Puerperal Sepsis

B. Bianchi (*Riforma Medica*, 1920, XXXVI, 1026) used milk injections in 57 cases. He reports an accelerated cure in certain cases and the warding off of serious disturbances. In severe advanced cases, there was no apparent benefit. He recommends it, however, for its harmlessness, availability and favorable influence, to reduce the objective and subjective symptoms, especially pain, and to augment the defensive powers of the organism. He advises its use on a larger scale, especially in the early stage when its potency is greatest.

Skin Diseases

Dr. Christian Stöber (*Deut. Med. Woch.*, Sept. 1921) reports on 9 cases of acne vulgaris in which this method of therapy was employed with marked success. He also treated 3 cases of acne indurata, in which the lesions disappeared without actual eruption. Doctor Stöber also obtained very favorable results in 3 cases of lupus of many years' standing.

Dr. A. Kraus (*Dermat. Woch.*, 1918, LXVII, 857) cites a case of impetigo contagiosa of face and neck cured by one injection, likewise 3 cases of fungoid infection of the skin, in which there was a striking reaction, followed by cure. He believes, however, that the treatment was more effective in acute cases of erysipelas, trichophytic affections of the skin, actinomycosis, and herpes tonsurans, than in chronic cases. He considers the milk antigen an important adjuvant.

Dr. Hans Reese (*Münch. Med. Woch.*, 1919, LXVI, 747) employs this method of treatment in trichophytia, deep and superficial, most of the cases exhibiting infiltrated sycotic foci of long standing. He reports 175 cases (*Münch. Med. Woch.*, 1919, No. 27). Almost every case yielded to three injections of the milk antigen. The average dose was 10 Cc. injected into the gluteal muscles, and the average time of treatment 21.4 days.

Dr. Hans Müller (*Münch. Med. Woch.*, Aug. 6, 1920) reported on the treatment of 100 cases of trichophytosis. While he did not duplicate the results of E. F. Müller, he obtained good results even in deep-seated infections. He secured still better results in furunculosis, disseminated acne and pyodermia. Three or four injections were sufficient to clear up cases of furunculosis.

Dr. Edward Zalewski and E. F. Müller (*Münch. Med. Woch.*, Feb. 14, 1919) have employed the treatment in staphylococcus infections of the skin, and to stimulate the general defensive powers in skin infections generally. Improvement coincides with an increase in the leucocyte count, especially in chronic cases, in which an increase up to 25,000 per Cc. can be found.

E. F. Müller (*Dermatol. Woch.*, 1918, No. 49, p. 825-829) comes to the following conclusion: The immunity process in case of fungus infection of skin is, as in any other infection, an expression of the body's defense against the invading organism.

The defense is proportioned in intensity to the amount of toxins elaborated. It is also much more pronounced in the deep-seated form than in the superficial types.

Diagnostic and therapeutic focal reaction can be achieved only when there is a sufficient contact between the infectious organism and the

channels of body defense, i.e. it depends upon the depth of the focus of the infection.

The dose must, therefore, be greater in cases of a superficially seated infection.

A nonspecific immunizing remedy, such as milk, brings about, in superficial cases, better results than specific treatment.

Bacteremia

Dr. R. von Jaschke used a milk antigen successfully in several cases of streptococcic bacteremia and in a number of cases of puerperal fever. In the cases of bacteremia, the microorganisms had disappeared from the blood after two injections.

Erysipelas

Erysipelas is one of the conditions in which milk antigens have proven most successful. For instance, Dr. Alfred Kraus (*Dermat. Woch.*, No. 51, 1918) reported on 2 cases of erysipelas which were rapidly cured by this treatment. Turnheim secured gratifying results in over 30 cases. Otto Kraus reported on 10 cases successfully treated.

Influenza

E. F. Müller and E. Zolewsky (*Med. Klinik*, No. 47, 1919) reports having used the milk antigen in hundreds of cases of epidemic influenza, with very favorable results. The initial dose was 10 to 25 Cc. and this was repeated daily for three days. No dangerous or untoward effects were noted.

Typhoid Fever

P. Saxl (*Wien. Klin. Woch.*, 1916, XXIX, 1043) treated 26 cases of typhoid. Virtually all of these showed at first temperature rise, persisting for about forty-eight hours; the temperature then steadily falling by lysis.

Pneumonia

V. Monguzzi (*Policlinico*, 1920, XXVII, 1170) used this method in 19 cases. The result in every instance was quite satisfactory; general and local improvement was the rule.

The nonspecific method is not a substitute for proven specific measures; but both should be utilized.

Corinaldesci reports on the intramuscular injection of 5 to 10 Cc. of milk in patients with lobar or bronchopneumonia and typhoid fever, and was astonished at the prompt and permanent improvement following one to three doses, without much general or local reaction.

Purpura

Döllken (*Berl. Klin. Woch.*, 1919, LVI, 226) used 5 Cc. intramuscularly every three days. He reports that, in all cases, hemorrhage ceased five hours after injection and that marked retrogression of the lesions could be seen in from sixteen to twenty-four hours. He claims that milk injections are of particular value in all diseases associated with hemorrhage and that the marked styptic effect indicates that milk injections are much more effective than normal serums.

The Diagnosis, Prognosis and Treatment of Carcinoma of the Rectum

III. TREATMENT

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[*Concluded from May issue, p. 334.*]

IN the rectum, as for carcinoma elsewhere, *radical* treatment connotes the use of the knife. Operative procedures date back nearly a century (1826) when the celebrated French surgeon, Lisfranc, excised the rectum through the perineal route, although, long before (1769), his countryman, Faget, had removed the lower part of the bowel which had been laid bare by extensive bilateral ischiorectal abscesses.

The combined (abdominoperineal) operation first suggested by von Volkmann, in 1877, was not actually carried out till 1882 by König; and, in 1886, Kraske introduced his method of sacral excision.

Nélaton (1851) thought of the vaginal route and proved on the cadaver that it was feasible; but it was forgotten for many years until Desguins (1890) revived it. Nevertheless, it was apparently first actually performed by still another Frenchman (Campenon) in 1894, who, having to deal with a non-malignant stricture, opened the cul-de-sac, resected the stenosed portion and successfully joined the ends. Murphy (1901) introduced the plan of systematic opening of the cul-de-sac at an early stage of the operation. Several years later, I had occasion to resort to a modified technic, which is facilitated by the fact the rectum and vagina can be readily separated above, as the union is not at all close.

These four methods with numerous modifications and refinements, many of questionable value, comprise the facilities at our command for attacking growths in the terminal intestine. Evidently, no one plan will serve in all instances; each case is to be judged by itself.

In 1558 operations by the perineal route which I collected, there were 258 operative

deaths. Only 824 patients were stated to have been followed up, and nearly half (364) had recurrence.

As regards the vaginal route, some years since, Chalier and Perrin tabulated the end-results of 31 operations: There were 2 operative deaths; 7 of the survivors could not be traced. Of the remaining 22, exactly one-half died, 4 from intercurrent disease, 5 from recurrence (two months to four years), two from metastases (fourteen and seventeen months). Nine of the 11 survivors at the time of report had no recurrence (six weeks to twenty-seven months), the other two had suffered return twelve and twenty-seven months respectively. Moreover, 8 had stercoral rectovaginal fistulæ, and another a fistula in front of the coccyx.

Lusk gathered 1244 operations by the Kraske method, with 194 operative deaths, the mortality percent ranging from 6.4 (Poppert), to 32 (each for Rotter, Schede and Von Bergmann). Kraske himself at first had a mortality of 34.5, but in his next series it was only 9.8 percent.

Lastly, for the combined (abdominoperineal) method, I have assembled figures from 27 clinics, with a total of 747 operations, and 199 operative deaths.

Years ago, the old-fashioned amputation of the rectum by the perineal route but preserving the sphincter was about the same as the plan then in vogue of excising the mamma without cleaning out the axilla. Recurrence was often rapid, the operation seeming merely to incite the growth to increased activity.

Personally, I prefer the combined, or abdominoperineal, method. To prevent cancerous material being forced into and along the lymphatics at the time of operation, it is a well-recognized procedure, in case of the mamma, for example, to begin the dissection from above and work down against the lymph-current, and the same should hold true in excision of the rectum. Obviously, this can be done only by the combined route.

One of the principal advantages of this is, that the infected nodes can be removed; difficult if not impossible when they are above the 3d sacral vertebra, the limit of the Kraske method. The originator of the latter method himself admits, that the chief benefit is the complete removal of the nodes behind the rectum and in the mesosigmoid.

Palliative Treatment

Palliative treatment is called for when the patient is first seen in an inoperable condition or refuses more radical measures. In either instance, considerable can be done to render life less miserable and lessen the danger of obstruction. At the present time, radio- and radium-therapy will have to be included in the category.

Of what may be called "surgical palliative measures," we have dilatation, proctotomy, curetting and colostomy. The first two are dangerous and absolutely contraindicated. They merely incite increased activity of the tumor; the effect is only transient and they may be followed by septic infection.

Curetting, with or without a previous cauterization, is more useful. It must be done thoroughly but gently; and, of course, repeated when necessary. It is not suitable for masses on the anterior wall adhering to the bladder, nor for those high up above the cul-de-sac. Wendel states that, of 20 cases at Küster's clinic, there were 5 operative deaths (pulmonary embolism, 1; peritonitis from perforation, 4). Moreover, the average duration of life was only about 3 months. Mummery, on the contrary, refers to a patient who was "kept alive and in comfort for over five years."

Colostomy is to be resorted to early before obstruction takes place. Of 130 operations done before complete obstruction, but 5 patients died; while of 21 done after this had taken place, 11 died (Cripps). In 224 cases from various European clinics, the operative deaths were 30 in number (Chalier).

The average duration of life in 91 patients operated on by Hartmann was a year, with extremes of 3 months and as many years. However, this last figure has been considerably exceeded—8 years (Cripps); 14 years, 20 years, (Keen). The figures just cited emphasize what I pointed out in the previous paper, that there is a vast difference in the abilities of various subjects to withstand carcinoma or other diseases. I mean, naturally, different individuals of approximately the same degree of involvement. In such instances, it appears to be the resistance of the given patient which accounts for the survival, rather than the particular technic which may have been resorted to.

Mummery gives the details of a curious case, apparently a spontaneous cure of rectal carcinoma following colostomy: A man of 48 was admitted with a typical carcinoma of rectum and anus. The growth was ulcerating and, in one spot, had extended out onto the skin surface. The colostomy was done preparatory to a radical operation. The hospital being closed for the annual cleaning, the man went home. In about 7 weeks, he was readmitted, when it was found the rectal growth had almost disappeared, it did in time completely;

and in six months more the colostomy wound was closed. At this time, there was no trace of the tumor in the rectum to be discovered.

X-Rays

These have a place for epithelioma of the anus, but the early expectations as to their benefit for growths in the rectum itself have not been fulfilled so far. It is quite likely, however, with the rapid progress in radiotherapy, that better results will be obtained before long.

Radium

It is too early to come to any definite conclusion as to the real value of radium. At the London Radium Institute (1917), the results "were not constant or uniform, but in some instances growths regarded as inoperable were so much improved . . . that they were removed and the patients remained free from recurrence. This, however, has not frequently happened, and in the majority of cases the most that can be hoped is healing of ulceration, diminution of the rate of growth, checking of the hemorrhage, and postponement of the date at which colostomy becomes imperative." Still, in fairness, it must be added that it is a rigid rule in this Institute to treat inoperable cases only, or when patients absolutely refuse intervention. At Manchester also, Burrows and Luyton found that "the improvement in cancer of the rectum was only temporary."

In this connection, Boggs states that the results vary greatly and can not be compared with those in uterine carcinoma. If radium in sufficient quantity is given, proctitis usually follows; which is very troublesome unless a colostomy is performed.

Hitherto, one could not be sure that the radium tube was in the proper position to exercise its radioactive properties, but quite recently I have devised a plan by which the location of the tube can be definitely ascertained.

Fulguration

The method of applying high-frequency currents was used with good effect in 2 cases by Mayne; both were in aged men with very marked renal disturbances and high blood pressure. The growths could be exposed through the proctoscope, and were entirely destroyed by the spark. One of these patients, aged 77, had been thus treated for 18 months and made very comfortable. Delatour also saw a few cases in which decided benefit resulted.

In these inoperable cases, the diet, while nutritious, should be one which does not leave much residue.

To prevent—or at least lessen—the intolerable odor from the discharge and lessen the liability to infection, frequent irrigations are necessary, *e. g.*, boric acid, though generally it will be advisable to use weak solutions of carbolic, lysol, permanganate of potash, or weak formalin. These may be necessary twice or at least once daily, and persisted in regularly.

A difficult problem is the relief of pain. Opium locks up the bowel, some of its salts by hypodermic injection are less objectionable.

Note

In this brief series of articles, I have had room only for the salient points. A full account of other aspects of carcinoma, and of all the other affections of the rectum, anus and pelvic colon will be found in my forthcoming treatise on the subject.

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Senile Gangrene

Report of Two Cases

By MALFORD W. THEWLIS, M. D., New York City

SOME time ago, I reported the case of a Narragansett Indian* whose left forearm was gangrenous, the result of Nature's treatment being as perfect as if a surgeon had amputated. It may be interesting to follow the history of this patient. She has been in excellent health during the past seven years since the attack, and has been able to do a great deal of work. The photograph shown below gives her picture today. The arm causes her no trouble; she still has diabetes but refuses to adhere to any restricted diet.

A few weeks ago she stepped on a rusty nail and an infection of the right foot followed, which was very severe. Bacteriologically, it was a pure culture of the staphylococcus aureus. The infection spread, the foot and leg were very swollen and she had a temperature of 101° F. Pus collected on the dorsum and on the plantar surface, and incisions were made on both sides. The foot turned a dark-blue color and was black in places around the toes. The odor was typical of gangrene and, in view of her previous illness, also since she had 3 percent of sugar in the urine, it seemed that gangrene was again present. I prescribed stannoxyl tablets, one being given every three hours. I will make a few remarks regarding this French preparation, which is said to have a base of oxide of tin and metallic tin free from lead.

In Beauce, France, it has been observed that tin workers never have furuncles. Powdered tin has been used as a remedy against furunculosis. Frouin and Grégoire (*C. R., Acad. des Sc.,* Paris, 14 May, 1917) have found that, when protochloride of tin, oxide of metallic tin or metallic tin had been added to bouillon which contained staphylococci, the culture showed only slight growth, and they believed that the action of tin and its oxide upon these bacteria, which they observed, justified their employment of this preparation in staphylococcic infections. They found that tin and its oxide, administered by mouth in doses of 50 centigrams to 1 Gram, gave excellent results in furunculosis, the furuncles disappearing ordinarily in fifteen to twenty days. There were no recurrences.

Case 1. Showing separation at the elbow, as made by Nature. The photograph was taken six years after the attack.

Powdered tin was a remedy of the old therapeutics and has been used as a vermifuge against tapeworm. It was also used for furuncles as a lotion for external application, containing 5 to 10 Grams per liter of the protochloride of tin.

Stannoxyl is prepared, according to the methods of Frouin and Grégoire, in tablets with a base of oxide of tin and metallic tin free from lead. It is also made for hypodermic injections and in a solution for external application for staphylococcic infections.

To continue with my case report, six days after commencing treatment with stannoxyl, the foot showed great improvement, the general condition improved and, on the eighth day, there was no pus, the fetid odor had dis-

*Thewlis, "Geriatrics"; The C. V. Mosby Co., St. Louis, 1919.

appeared and the foot resumed its normal color. Recovery has been complete.

In several other instances of staphylococcic

Case 2. Showing how Nature separated the gangrenous part from the healthy tissue. Man, æt. 64.

infections, I have seen stannoxyl work well, especially in furunculosis. It is not an established fact that tin has the properties which have been described. I can only give my clinical experience with its use.

I saw another interesting case of senile gangrene, with Dr. H. Wilcox, in a man of 64, who had gangrene of the left foot. He had diabetes for several years and had suffered a great deal from carbuncles. Gangrene developed suddenly in one foot, but he was in poor condition for an operation. Moreover, he was as strongly opposed to a surgical procedure as was the Indian woman described above. He had been in bed for a long time, had many bed-sores, and his general condition was very unsatisfactory. He lingered in bed for months. Finally, the gangrenous part of the foot separated from the healthy tissues, and, as we can see in the accompanying photograph, Nature has made a good "amputation." At present, the man is able to walk with the aid of crutches and his general condition is much better. There are two small places on the foot which have not completely healed, but the case is similar in many ways to the one first mentioned.

In reporting these cases, I am not advocating non-interference in gangrene. We all know that, with proper attention to blood-sugar examinations and with care in the selection of the anesthetic, surgery is the best procedure. Nor am I dogmatically advising the use of tin and its oxides, (whose action has not been clearly established) for staphylococcic infections. I am merely reporting clinical observations which may be of interest to other physicians.

Studies in Endocrinology

The Pituitary Body and Its Relation to Modern Medicine

By REGINALD WEILER, B. S., Ph. G., M. D., New York City

[*Concluded from April issue, p. 274.*]

NOW that we have shown that the posterior pituitary is the seat of the sympathetic center, we wish to show that it is also the seat of common sensibility and is a general *Motor Center*. This lobe is so constructed as to indicate that it can render functions of the highest order, such as consciousness, conscious volition, and a certain amount of intelligence. Its anatomical characteristics indicate that co-ordination could be carried on in this lobe. It not only can generate motor impulses but can also receive sensory impulses.

Removal of the pituitary abolishes sensation in all nerves, even of the fifth pair. There are no reflex phenomena present after removal of the pituitary. The special senses are more or less impaired in acromegaly.

The cortex is not the only organ through which cutaneous and internal sensations are directly perceived. These sensations, which include pain, heat, cold, pressure, hunger, thirst, muscular, and special senses, are perceived by and through the posterior pituitary. This organ also receives all sensory impulses which reflexly incite and sustain the secretory activities of all glands (gastric, intestinal, pancreatic, salivary, lachrymal, lacteal, etc.) and the contraction of all muscles, striped and unstriped, peripheral or internal (including those

of the vessels and heart, the stomach, the intestines, the bladder, etc.). The processes governed by the posterior pituitary are thus not mere reflex phenomena such as those elicited from subsidiary nerve centers (those in the medulla and spine), they include all functions which require conscious and, to a certain extent, intelligent coordination. This involves a conclusion that the posterior pituitary body is the general center of all the cranial nerves concerned with common sensation and motion.

The posterior pituitary, because it is the seat of the sympathetic center and motor center, is the controlling seat of the adrenals, and, therefore, controls thermogenetics and is a respiratory center. It has already been shown that this organ contains the governing center of the adrenals. The adrenal secretion, when oxidized in the lungs, becomes adrenoxidase Adrenoxidase is the substance that supplies the entire organism with oxygen. If we can prove that there is a direct nerve path from the test-organ of the pituitary to the adrenals we have an adequate explanation of temperature. The tuber cinereum, it has been shown, contains nerve paths from the pituitary. Experiments have ascertained that, if part of the tuber cinereum is removed, the number of respiratory movements is diminished. The role of respiratory center involves control over the organs which govern respiration (chest, diaphragm, abdomen, ribs, etc.). It has been pointed out that the pituitary controls all muscular activity. Removal of the pituitary is followed by muscular relaxation, hypothermia, and dyspnea.

If transsection of the spinal cord is performed below the fifth thoracic (dorsal) vertebra, the thermal condition of the organism is undisturbed. If this operation is performed above the fifth thoracic veretebra, temperature declines until death ensues. The thermogenetic nerves leave the cord above the fifth dorsal (thoracic) vertebra and proceed thence to the adrenals. The pituitary, then, through the adrenals, regulates thermogenetics; and the "heat center" is located in the posterior lobe of the pituitary.

Therefore, the thermogenetic and respiratory centers are not located in the tuber cinereum, the bulb, the spinal cord, but the heat center is situated in the partition between the anterior and posterior pituitary. As such, it is the governing body of the adrenals.

The nerve path from the pituitary to the adrenals goes as follows: From the test-organ to the posterior lobe of the pituitary upward to the tuber cinereum, along the structure to the pons varolii and bulb, and down the spinal cord to the first, second, and third dorsal nerves, then to the sympathetic chain to the greater splanchnic nerves; thence to the suprarenal plexus to the adrenals. The respiratory center is located in the posterior lobe of the pituitary and is represented by an aggregate of nuclei which are themselves the chief centers of all the cranial nerves that govern the respiratory muscles. The nerve paths from this center pass upward to the suprainfundibular nucleus and then posteriorly to the bulb, where they become merged with the subsidiary center of the various cranial nerves which govern the functions of the various respiratory nerves.

Adrenoxidase is an aggregate of the oxidases contained in the body and is the dynamic principle in metabolism and, therefore, of vital processes. Adrenoxidase is, therefore, the agent through which life may be controlled. This substance is the oxygen-laden secretion of the adrenals. The adrenals are governed through nerve chains whose center is in the pituitary body. Hence, it is the center of the adrenals in the pituitary which, through the adrenals and their adrenoxidase-forming secretion, controls life. The purpose of the adrenal center is, to test blood and protect it against invasion by noxious substances. Therefore, toxic material introduced in the blood can, by provoking a reaction in the adrenal center, enhance metabolism. The adrenal center is the thermogenetic center because, by stimulating the adrenals, it produces an increase of adrenoxidase, supplies the organism with oxygen, which by combining with the phosphorus of nuclei, liberates the bulk of bodily heat.

The Anterior Pituitary Body

In the following discussion, we wish to prove that the anterior pituitary is a lymphoid organ in which the products of leucocytes, and any drug, poison, or toxin that these cells may contain, are exposed to the test-organ.

The anterior lobe of the pituitary may very properly be called an organ of special sense and assumes the role of a sensory organ. Its function is, to detect and counteract variations in the blood, such as toxins. The anterior pituitary is not a secretory organ, and its function is, to test the quality of the blood circulating through it, and awaken, if necessary, a defensive reaction throughout the body.

If this organ were secretory, its secreting elements (the epithelial cells) would be arranged in regular rows as in other glands; but, this is not the case. The organ is made up of

convoluted tubes or alveoli. The individual cells of these tubes are masses, for the most part, promiscuously scattered. The cells resemble phagocytic epitheloid, like those found in the mesenteric lymph glands. The anterior lobe, like lymph glands, is kidney-shaped and incorporated in a hilium. Both structures have a fibroelastic *capsules* and septa which subdivide the structure very much. Both contain lymph sinuses. Therefore, summing up these few statements, we agree with Sajous' statement that, now, what is regarded as the glandular epithelium of the anterior pituitary, is mainly composed of promiscuously distributed epitheloid mononuclear macrophages which carry on, therein as elsewhere, their functions of general scavengers.

Besides the mononuclear (great and small), which are probably evoked in the anterior lobe, and giant cells, the organ contains blood leucocytes, i.e., neutrophiles, acidophiles, and basophiles.

Defensive Function of Anterior Pituitary

Then it can be said that the anterior pituitary is, like all lymphoid glands, intimately connected with the defensive functions of the body, through the presence of its large mononuclear macrophages, and that these large mononuclears are epitheloid cells; in the sense that they form, in the organ, an irregular epithelium, and that, after the smaller phagocytic leucocytes, especially the neutrophiles, secrete their granulations and other products of food-material, waste products, drugs, poisons, toxins, toxic-wastes, etc., (injected by them elsewhere in the body) those leucocytes which have been killed by microbes, poisons, etc., are removed as detritus from the anterior pituitary by its mononuclear macrophages; and that his process of elimination is assisted by the periodic contractions of the organ (such as those of the spleen)* which project all living leucocytes and a current of colloidal aggregation of lymph, adrenoxidase, dissolved granulations, drugs, wastes, poisons, etc., into the lymph-spaces of the organ, and then into the lymph-system, whence they pass into the blood to be destroyed. By this process, also, the contents of the leucocytes which penetrate into the tubules, i.e., any noxious substance which may be harmful to the organism at large, are brought, probably by the ciliated epithelia of the anterior wall of the paranervous cavity, into contact with the sensitive epithelium the test-organ.

The test-organ sends nerves to the tuber cinereum where they connect with the nerve chains which terminate in the adrenals. This organ is, therefore, the fundamental factor of the body's autoprotective, or immunizing, functions.

A List of Its Functions

A complete statement of the functions of the anterior pituitary follows:

1.—It is not a secreting gland or the source of an internal secretion.

2.—It fulfills, in all higher animals, the same function that the osphradium, or test-organ, does in various invertebrates and lower vertebrates, viz., it tests the purity of the respiratory and nutritional fluids i.e. the blood in man.

3.—Inasmuch as, in man, the food products, normal or toxic wastes, drugs, and poisons are taken up by the leucocytes in the alimentary canal by the blood, and distributed by them to all parts of the body, the anterior pituitary, a highly vascular organ, receives its share.

4.—While the plasma and red corpuscles remain within the vessels of the anterior pituitary, the leucocytes migrate through the wall (diapedesis) of the various capillaries and accumulate promiscuously in the anastomosing tubules of which the parenchyma of the organ is composed.

5.—Once in these tubules, the leucocytes secrete their granulations, acidophile, basophile, and amphophile and any other substance, benign or toxic, they may contain.

6.—All these substances dissolve in the tubules, in fluid derived from the leucocytes themselves, and adrenoxidase derived from the red corpuscles in the capillaries.

7.—A colloid substance is thus formed which contains a given proportion of all benign and toxic substances that are being distributed to the body at large.

8.—This colloid substance represents, therefore, a specimen of the nutritive materials which the tissue cells are assimilating.

9.—This specimen enables the test-organ of the anterior pituitary to take cognizance of any noxious substance or drug that may be contained in these materials.

10.—This test-organ is situated in the superficial tissues of the partition which separates the anterior from the posterior pituitary, and faces the parenchyma of the former.

11.—The elastic capsule of the anterior pituitary contracts periodically, each compression of its sponge-like parenchyma propelling the colloid substance posteriorly, i.e. towards the organ.

12.—The colloid substance is thus projected into a cavity between the parenchyma and the test-organ and brought into contact with the

latter on its way out of the pituitary by way of the lymphatics.

13.—The test-organ is a sensitive structure; the surface exposed to the colloid substance is similar to the olfactory membrane.

14.—It sends fibers into the posterior lobe of the pituitary, which fibers (not directly, but by functional contact) ultimately pass upward into the tuber cinereum, where they merge with the nerve-chain that terminates in the adrenals, the organ which, when stimulated by the test-organ, awakens a protective reaction in the body at large.

The pituitary is not a gland with a secretion. It owes its activities to the fact that it is rich in chromaffin tissue (adrenal substance). When injected, it causes the identical phenomena produced by injecting adrenalin. It is found that an injection produces a rise in temperature, mycosis, slowing of the respiration, powerful cardiac beats, and rise of the blood pressure. When applied to the mucous membrane, it causes blanching as is the case when adrenalin is applied. If it were an organ of internal secretion, its removal would result in death; but it does not. If the adrenals or thyroid be removed, death follows unless the active principles of these glands are artificially supplied. However, when the pituitary is removed (as has been done for tumor, etc.), death does not necessarily follow. On the other hand, if the pituitary is merely considered as a coordinating center supplied with subsidiary centers in the bulb, which centers could normally assume its functions, as the chief center is being destroyed, we can understand how a degenerated and useless pituitary may be removed with impunity.

Pituitary Organotherapy

We have seen elsewhere that the pituitary body is not a secretory gland but a composite nerve center. The use of pituitary preparations, therefore, is not the scientific use of a substance which carries on well-defined functions in the body, but rather the use of a substance rich in chromaffin substance and nucleins. The effect of pituitary organotherapy is identical with that of adrenal organotherapy, but, in the author's opinion, the effects of the pituitary administration last longer and are weaker in effect. That is, where ½ grain of adrenal substance is indicated, 1½ grains of pituitary substance may be given. But, where adrenal preparations exert a very transitory influence, pituitary preparations remain functionally active after ingestion or injection for two or three hours. The pituitary preparation is more stable than the adrenal and can be given per mouth without compromising its effects.

In cardiac disorders, pituitary gland raises the arterial tension and corrects functional disorders of rhthym. The dose of the tabloid preparation is from 1 to 5 grains. It is useful in acute weakness of the myocardium, particularly that due to sudden shock or infection. It acts as an active "cardiac" diuretic. It is useful in mitral disorders with a hyposystole, in chronic alcoholic myocarditis, and in tachycardia, especially of the menopause. In organic heart diseases and in aortic affections, it is contraindicated.

It is useful in pneumonia, influenza, typhoid fever, bronchitis, etc., when there is a rapid, weak pulse with low arterial pressure.

In obstetrics, it is the remedy "par excellence." It should, however, not be employed until after the birth of the head. It prevents post-partum hemorrhage and aids involution. It is recommended for placenta praevia of the marginal type. It is also useful in menorrhagia and metrorrhagia.

Whenever adrenal extracts are indicated, pituitary should be given intramuscularly as a coagent. In all infectious diseases, where there is no contraindication (as, arteriosclerosis or organic heart disease or organic kidney disease) its use hastens convalescence and tides over weak spells.

Its use in acromegaly is limited. It may clear up some of the minor symptoms, but seldom aids in the checking of the disease. It should not be used in the sthenic stage but should always be tried in the asthenic stage.

In exophthalmic goiter, its use is indicated in conjunction with the other treatment resorted to.

In neurasthenia, its employment tends toward recovery, but other indicated treatment should also be employed. There are reports of very wonderful results obtained by the use of pituitary gland alone and combined with ovarian extract in bulbospinal myasthenia. In chorea, improvement follows the use of this agent as a general thing.

Benefit has been derived from its use in stimulating stunted growth in idiocy.

Truly marvelous results have followed its use in intestinal paresis. Either in postoperative or in paralytic gaseous distention, this preparation has proven its worth.

Good results have been reported from using pituitary gland in rheumatic arthritis; gonorrheal arthritis; etc. In rachitis, where other remedies have failed, pituitary gland has proven

curative. A calcium salt should be used in conjunction with it.

In asthma, it is very helpful but, when it is used with benzyl-benzoate, recovery is prompt if the asthma be of the bronchial variety. I would recommend daily intramuscular injections of pituitary solution, together with 3 grains every three hours by mouth. Besides, benzyl-benzoate should be given in 1 or 2 teaspoon doses of the 20-percent suspension every two hours.

Good results have been reported from its use in hemoptysis.

In concluding this paper on the pituitary body, I want to thank my friends for their kind assistance, particularly Miss Effie May Russell, R. N., of New York City. I also wish to make it clear that the greater part of this article is a reproduction of Doctor Charles E. De M. Sajous' work on the pituitary body. However, everything that I have written concerning this great nerve center and which has been copied or reproduced with slight alteration from Sajous' work has been *verified* by me before attempting to put it into print. The reason that I have used, in some instances, Dr. Sajous' own words is, that he has said them by far better than I could; and any alteration of them would spoil the sense of the logical argument or the conclusions. I wish, therefore, to extend to the greatest endocrinologist and one of the greatest physiologists of all times my sincerest gratitude. Anything that I could say would but inadequately express my profound respect and admiration for that great savant.

The following authors have been consulted through the medium of their books in preparing their paper:

Charles E. De M. Sajous—"Internal Secretions and the Practice of Medicine."
MacLeod—"Physiology and Chemistry in Modern Medicine."
Steadman—"Medical Dictionary."
Young—"Handbook of Anatomy."
Piersol—"Anatomy."
Lorand—"Old Age Deferred."

The Fatal Ray

By MILES J. BREUER, M. A., M. D., Lincoln, Nebraska

[*Continued from May issue, p. 352.*]

THEY sterilized the instrument and prepared everything just as they would for a major operation. The doctor adjusted the scalpel tip, and forced the instrument through the patient's abdominal wall, over the liver. He then applied his eyes to the telescope and probed around,

"Come and look," he said, "this is the macroscopic sheath." I judged that what I could see was the inside of the expanded glass bulb and the tissue around it. The ball had spread the incision made by the scalpel, and the pressure held the bleeding. What I saw was a dense, solid white.

"Carcinoma?" I asked.

"Yes," he said; "we shall check it up with the microscopic sheath." He attached several wires to the instrument and slipped in a new rod. When I looked again, the picture was unfamiliar to me. It was microscopic structure, by reflected light, in several colors; apparently, different kinds of light illuminated the various portions of the tissue differently. I could recognize cells and nuclei, one in the spindle stage of mitosis, and to one side, corpuscles crowding through a capillary. The general structure of a carcinoma was quite apparent.

"We can attach a camera to this, and get a chart of the whole visible area," the doctor said.

"But doesn't this thing make a severe or dangerous wound? It looks like a mutilating method of diagnosis."

"Why? We inject tethechrome before we withdraw the instrument, and tomorrow she will never know she had it done. But, come, we have a few moments to spare; let us see what some of my colleagues are doing."

I cannot go into the details of all I saw. I was so overwhelmed by it all that I cannot remember much except the wonderment it caused. A patient received an opaque fluid intravenously, and we watched the streams of blood through his heart on a fluoroscope, and the opaque substance filtering out of the circulation into the kidney tubules. They made motion pictures, in order to study out what valvular lesions were present. I saw a baby with a purple birthmark all over its neck; a pale violet light was turned on it from a lamp shaped like an automatic pistol, and the mark melted away, leaving a white area. I saw a man with an infected knee, red and swollen; an affair like an automobile radiator was swung over it, and I watched it grow pale and relax in the course of twenty minutes.

"We can control the secondary induced radiations so accurately, that we can regulate a dose to kill only one form of life, and no other. When we have an infection, we determine what organism is present, set the dose to be specific for that, while the tissue escapes without any effect whatever. Then the dose is altered so as to decompose the toxic products of bacterial growth into harmless substances."

"I would have expected, from the trend in my time, that there would be much specialization. Yet, I see you and others doing all sorts of work, surgery, medicine, x-ray, laboratory—"

Medical Practice Simplified

"There are two explanations for that," the doctor replied. For one, the modern training of an individual is very complicated compared with that of any period in the past. Every fifteen-year-old boy today is skilled in the use of instruments, is able to utilize methods of reasoning, and to attend simultaneously to a considerable number of matters, which, if I enumerated the details, would really cause us to consider it impossible for one person.

"Secondly, human knowledge grows simpler as it comes nearer the ultimate truth," the doctor continued. "I will venture to say that medical practice is far simpler today than it was in your day. An item which in your day required a whole book and took weeks of study to learn, is now expressed in a paragraph and learned in a moment. It is only the uncertain parts of our knowledge that are complicated, and we practitioners do not not bother about that. Our students spend only five years in actual preparation for medical work.

"Now we have learned that the human body is a unit working as a whole, and not composed of independent parts to be divided up among 'specialists'; we are merely doctors, to attend to the sick, and to do what the case requires. You had some wonderful surgeons in your day; but a third-year medical student today could teach them things, technical and theoretical, that would astonish them. Yet, today, we do not do anywhere nearly the amount of surgery that you did in yours."

It occurs to me to add here that, later, I ran across various lines of occupation, which suggested that there must be numerous and strange offshoots from the main medical trunk. On the directory of a big professional building, I noted various signs, such as:

Physiological Engineer
Personality Building
Hygienic Director
Sanitary Consultant
Public Hypnotist
Commercial Suggestion, and even a
Licensed Corporation for Euthanasia.

City Streets, A.D. 2075

I anticipated my first venture into the streets of the new Lincoln with eagerness, and was quite excited when we stepped out of the hospital, on our way to Dr. Deland's home. I wish I could remember everything I saw and experienced better than I do. The street gave me an impression of intense activity. The streams of people shooting swiftly past each other, the subdued rattle of the moving street, the rumble of traffic from below, and the humming from the moving shapes in the sky, all made me feel rather uncomfortable. The people stepped deftly along the moving street from one section to another, but I came very near losing my balance when I stepped from the second to the third with Dr. Deland. After that, I stepped so gingerly, and balanced myself so carefully that people were inclined to turn and look at me. We rode only a short distance, crossed the street by a graceful little archway overhead, and descended to the traffic level.

If it was uncomfortable above, it was doubly so here. The street was a wild torrent of huge, rumbling vehicles, which, with the moving street above, made such a din that we had to raise our voices in talking to each other. The dim daylight that filtered through the translucent material of the moving street was reinforced by rows of big white lights. I noted that the noise of the traffic was due far more to the heavy loads than to the operation of the vehicles; the latter varied all the way from huge trucks, like a house hurtling down the street on small solid wheels, to swift, spidery passenger cars, which were mostly wheels. We went into a garage for the doctor's car; he lived about twenty miles south of the hospital, and drove back and forth. It was a bright affair, as though made of aluminum, with six-foot wheels and huge rubber tires; the tonneau with very comfortable seats was hung quite low.

"Expensive toy," said Dr. Deland; "new solar power unit. Most of these cars," waving his hand toward the traffic, "are run by cellulol, a distillate from the kashawa plant. I think that, in another generation, all vehicles will be run by solar power."

As I was eager to see the machinery, he showed me a small box behind the seat; it

contained a great many glowing white buttons on little partitions, and that was all.

"But where is your engine, and your transmission?" I asked, expecting to see some wonderful refinements along that line.

"I suppose it will be difficult for you to grasp the principle of direct traction, without the intervention of rotary motion," he replied; "I shall try to explain it later."

He drove out into the street, which was also divided into sections, the swiftest vehicles having the middle section. We soon came out from under the moving street, and under the open sky. Here the heavy trucks and freight vehicles grew scarce, and the swift, passenger cars predominated. The walks along both sides of the street were in motion. The buildings were not so high here as in the business portion of the city, and were loosely spaced, interspersed with lawns, trees, and flower-gardens. This quarter contained mostly hotels and apartment buildings. I could not help being impressed with the harmony in the size, style, and arrangement of the buildings; a glance down the street revealed, not a row of individual structures, but one consistent plan, of which each building was an essential part.

"Let us stop," suggested the doctor, driving into the outer section; "while you look back."

What a sight met my eyes! Could I but make it seem real to you, people of Lincoln, that you might be proud of your future, and work inspiredly toward it! In the foreground, gardens and groves and palace-like buildings, as though taken from some fairlyland city set on the stage. This spread ahead of me for a mile; and out of, like some immense mountain-peak, rose the business district. First there was the outlying range of plain, massive buildings for storage and wholesale; then, terrace upon terrace, of increasing height, intricacy, and grandeur; here a row of immense domes, there a forest of little spires; toward the center, the towering office and department buildings, and, rising above all, the white and gold tower of the capitol building.

"What a city!" I sighed. "In my day, that would not have been considered humanly possible. How does Lincoln rank among the cities of the United States?"

Dr. Deland smiled.

"Beautiful it is," he said. "It is widely known for its beauty. But, in size, it is a mere country village. You shall soon see other cities, and you will find no two alike. You will see Chicago, the many-storied city, where for many square miles there are four, five, and six layers of busy streets one above the other; the lower one never sees daylight. You will see New York, the city of magnificent heights; where there are offices, stores, and warehouses, hundreds of feet below the surface, in the rock; where there are viaducts connecting the tops of the skyscrapers, five hundred feet above the ground; where transportation in a vertical plane is as important and extensive as on a horizontal one. You will be interested in Rockafeller, Kansas, the "artificial" industrial town, which was built all at once, like one huge building, whose ground level is all free for traffic, and rooms, offices, and inside spaces are found only on the second and higher floors, while the roof of the city is one wonderful park."

In the meanwhile we slipped into the middle section, and I had a ride such as I had never had before. The surroundings melted into a blur, and I held on and gasped for air. The doctor seemed nonchalantly at ease. In less than fifteen minutes from the time we left the hospital, we were at his house.

4. The Ray

I spent a pleasant Sunday there but, yet, looked forward to returning to the hospital. You may smile at me, but you've never been all alone on the other side of such a gulf, with only one person to understand how you feel. Still, I learned many things. The homes fringed the highways, one to three deep along both sides, and behind them were fields. Back of the doctor's house, was an immense forest of tropical looking trees; the kashawa plants, which grew fifteen to twenty feet high every year, and from which was made a sort of alcohol for fuel purposes, and paper used for the manufacture of countless articles, including the clothes we wore.

I noted too, the people, the doctor's family, and the people in the streets. Their features were regular as models; they had a freshness and vigor, their bodies were big and powerful, and they moved with a robust, vigorous ease that was rare in my day. There was no great discrepancies in size, no cripples, no ugly faces.

There were five of us seated around the table that Sunday afternoon. Dinner had been ordered from the city by telephone; when the mistress of the house gave the signal that she was ready for it, a buzzer sounded, and a circular panel in the wall opened with a swift rush, like a powerful sigh, and from the opening, a cylinder, much like a shell for a high-powered cannon, dropped into a padded basket; and the panel clapped loudly shut. From the cylinder, the dinner was put on the table.

[To be Continued]

Surgical Seminar

Conducted by Gustavus M. Blech, M. D.

Physiotherapy in Surgical Diseases

NO OTHER apology for this month's discussion is offered except the entire issue, from which it can be easily seen that I had as much opportunity for selecting a theme as the proverbial snowball in a hot furnace.

At first, that is, on receipt of a hint from a high source (at least the word high can be qualified by "handed"), I was inclined to wish my appointment as editor of this department on some one else; but, on second thought, I figured out that even in June one encounters chilly nights and, if the reader will select some such an evening, light his pipe and settle himself near the grate fire, his communion with us may not appear cheerless after all.

Of course, the subject matter is virtually endless. What about the use of radium, the x-rays and diathermy in malignant diseases? What of the use of x-rays for prostatic hypertrophy? What of the use of heat in certain surgical affections and in the after-care of laparotomized patients? I have mentioned these few themes merely to suggest the vastness of the subject. Truly, we could fill the entire issue and repeat the feat a dozen times and still not have exhausted the subject. But, the reader need not worry. I have outgrown the period when to produce a book was the height of my ambition and, what is more, I do not intend to even mention the things which can be found in standard monographs on the subject.

Still, I can not help but realize how fickle even we surgeons and editors are. We laugh at the women with their fashions and we are no better.

A new idea—actually there is nothing new under the sun, according to Rabbi Akkiba, even though "discoverers" will deny this with vehemence—or what purports to be a new idea appears in some ultrascientific surgical journal and, if that idea emanates from the brain of a man who has "official standing", you can bet 99 to 1 and sure to win that, for a year or two, editors will be flooded with and will publish articles on the "new" idea.

Then one of two things happens: Either the enthusiasm wears off and the cost of distributing reprints is entered on the debit side of the surgical ledger, or else the kernel is retained as a permanent asset.

So it is with *Bier's Hyperemia.* When Bier, a pupil of the famous v. Esmarch, gave to the world his *Hyperaemie als Heilmittel,* I was still a young man. I was so enthused about the author, whose contributions have been path finding, that I did not delay in obtaining his consent to give his work to the English speaking medical profession. It used to hurt me when, in looking over new textbooks on surgery, I failed to see that Bier's method received the attention it merited.

That the authors of the diverse textbooks were men who possessed greater clinical experience, maturer judgment and even a broader surgical horizon than I, never entered my prejudiced mind. I was like all fanatics—mine little God was the only true one and if you did not kow-tow to my deity, you were a heretic; and there you are. But, as I have hinted, I have grown older and, with advanced age, a bit iconoclastic. One indulges in retrospection and —necessarily smiles.

Yet, Bier's method of artificial hyperemia is even today a most valuable remedy, provided it is used intelligently. Indeed it is exceedingly valuable in cases of acute gonococcal arthritis, and I could cite a fairly large number of cases in which the application of a constricting rubber bandage has apparently produced miracles. Again and again, have I seen young men and newly married women show exquisitely painful joints (elbows, ankles and wrists especially) in connection with a gonococcal urethritis, which, even when properly recognized, resisted rest, splinting, liniments and sera.

An application of an ordinary soft rubber bandage, proximally from the affected joint and taut enough to produce venous congestion of the limb, will cause the sufferer to look into the face of the surgeon with a gaze expressing gratitude for the relief afforded.

I presume, by this time, this method of treatment is too well known to need elaborate description. It has the great advantage of simplicity in that no apparatus excepting a rubber bandage costing about fifty cents is required. If the application does not produce the desired

result, that is, if the patient does not admit relief from pain within five minutes, one of two things is the cause; either the bandage has been applied too loose or too taut. In the former case, no venous hyperemia in the distal portion of the constricted limb is produced; in the latter case, the congestion is too intense and as likely to increase pain.

The regulation of the degree of compression is a matter of experience obtained through repeated experimentation. It is always better to produce the slightest possible venous congestion and increase it if it proves insufficient, rather than loosen the bandage because it has been applied too firmly.

If one possesses a manometer or similar blood-pressure apparatus, the cuff may be inflated until the desired relief is obtained and the degree noted and maintained. In the subsequent treatments, the needle or mercury column will make renewed experiments unnecessary.

While any intelligent person can be instructed in the method of application, I deem it best to place patients afflicted with gonococcal arthritis in a hospital and to see them twice daily. In most hospitals, the nurses themselves will have to be instructed in the method, but they are quick to learn.

The applications should be made several times daily, each lasting from half to one hour.

The surgeon, on each visit, should attempt passive and active motion of the affected joints, while the patient is being treated with the bandage. It will astonish even the most skeptical with what ease these movements can be executed, while, without the bandage, the mere touch of the joint causes most excruciating pain. Early and repeated motions prevent ankylosis.

This method of treatment is, of course, indicated in many other inflammatory and infectious diseases of the extremities, but, the results are never as brilliant as they are in gonococcal infections.

Active hyperemia is produced by heat. Bier uses variable apparatuses to apply heated air to diverse parts of the body. The Betz apparatus is quite popular in the United States. Hot air has been used quite extensively in the past. If one guards against burns, the method is a pleasant one in the socalled rheumatic forms of arthritis, but it has already fallen into disuse. This is explained partly by the use of electricity as a source of heat and partly by our better understanding of infection. The pendulum has swung to the other extreme. Today, if you do not send your patient for every minor ache and pain to the dental radiographer and then "command" a dentist to yank out every suspected tooth, you are an old-fashioned fossil, to be classed as one who should have practiced medicine in the middle ages.

Now, I do not want you to interpret my remarks as meaning that I have no faith in "focal infections"; for, on the contrary, I have seen brilliant results following the removal of an infected tooth. But, I do protest against the indiscriminate, pattern-like and blind "routine", which knows no "ifs" and "whens". I don't care what people may say about us, but I know that there is such a thing as carrying an otherwise good idea to extremes. And the salicylates are far from being useless drugs!

Bier produces hyperemia of a mixed type by vacuum. For this purpose, he employs apparatus made of glass to which are attached rubber bulbs or pumps by which the air in the appliances (after they have been adjusted to the skin) is thinned, resulting in an effect as we observe it in the old-fashioned cupping instruments. These appliances are small, ball-shaped glasses or large oblong glasses to fit the chest and larger regions of the body.

Personally, I use this method in the treatment of abscesses (external, of course), furuncles, and mastitis. The use of these appliances enables one to evacuate the pus easily through ordinary stab-punctures. The large incisions into the mamma produce undesirable and annoying scars. With Bier's method all one has to do is, to stab the softest spot with a narrow bistouri and then apply the Bier cup over the breast for half an hour. A few such treatments result in a complete cure.

Before dismissing the subject of hyperemia as a therapeutic agent, I might mention that the use of a number of ordinary electric light bulbs, fastened to a curved piece of wood or other material so as to fit over an abdomen, will prove of great value in the after care of abdominal operations of a character likely to cause severe "gas-pains". The heat radiating from the lighted bulbs will not burn the skin (which should be protected by a bed sheet), but it will cause the patient to enjoy normal sleep without the necessity of resorting to narcotics or hypnotics.

The employment of physiotherapeutics necessitates comparatively large expenditures for the required appliances. Radium is exceedingly costly. A good x-ray apparatus is not sold over the bargain counter and, as for the em-

ployment of diathermy, the faradic, galvanic, the high-frequency currents, and the diverse phototherapeutic agents, they too require a full pocket-book or long credit.

The average practitioner and surgeon will, in most instances, prefer to refer patients needing physiotherapeutic attention to well-equipped specialists or institutions.

Those of you who followed my previous editorial contributions know my penchant for getting along with as simple and inexpensive instruments and materials as possible. For, after all, it is not a question of cumbersome complicated apparatus and glittering hardware which guarantees successful surgery, but the skill of the surgeon.

In the practice of physiotherapy, however, the economic problem is paramount. One must have apparatus and, as the makers of these apparatus have only a limited market and no desire to die in the poorhouse, you and I must contribute to their material welfare.

But, I am interested in you and not in the manufacturers. So, I say, you must know first what you actually need, what you can accomplish before investing your hard-earned money in equipment.

Time was when doctors gladly paid a couple of hundreds for static machines "to impress the patients". Such machines were favorite means for advertising quacks to treat the neurasthenics. But, times change. Noisy machines and fast sparks may fool a "neuro" a few times; after that, however, he is certain to find the way to one of the edifices dedicated to the latter-day divinity, Mrs. Mary Baker Eddy.

And, so, you must learn to differentiate between truth and fiction; that is to say, between the claims of the manufacturers and the actual results.

If you should visit my office today, you would be astonished to find my consulting room to have only a few cups in the instrument case, a rubber bandage, and a small galvanofaradic wall-plate, for which I paid forty-five dollars.

As I do general surgery only, I can handle all cases in which hyperemia is indicated, as was shown earlier in this article. I can, and still do, apply the galvanic current to a sound for the purpose of facilitating its passage through certain strictures of the urethra. I also use the current to destroy a caruncle of the urethra. In addition, I use ice-water to treat hyperesthesia and other neuroses of the urethra (by a blind double-catheter) and here my physiotherapeutic activities end.

My cases of papilloma of the bladder are sent to a specialist who has the high-frequency apparatus powerful enough to fulgurate the growth. The "toys" selling at 25 or 30 dollars in every department store are "sucker-catchers", but not scientific appliances.

With the facilities available in a city like Chicago, I would not invest even a hundred dollars in the socalled portable x-ray apparatus. Either the best or nothing. If you have a case of lupus, and you want to treat it, the Finsen-light still is the remedy *par excellence*. The patient will need many treatments and, if he can afford to pay you, get a real apparatus—do not monkey around with "blue lights" which have no therapeutic virtue whatever.

The question arises what of the practitioner who lives in a small town? What if there be available none but the simplest equipment for general medical and surgical work in the nearest hospital? It is assumed that the practitioner is enthusiastic enough to devote all his energies to his own clientele and avoid as much as possible sending away his patients.

It is difficult to give advice of a detailed character. Fortunately, this is not necessary; for, many of the problems will be solved by each practitioner as they arise.

A young physician just establishing himself is not going to run into debt solely to have his office equipped with even the most useful physiotherapeutic appliances. As patients will come in whose afflictions imperatively demand some form of physiotherapy, he will secure the needed apparatus, since this class of cases can easily brook the delay needed between the mailing of the order and the arrival of the shipment.

That this equipment may occupy—eventually—sufficient space to transform the physician's office into a veritable therapeutic workshop requiring at least two large rooms, can be easily imagined.

And, again, I must sound the warning not to be misled by the inexpensiveness of certain appliances, especially those advertised to the general public. Such an equipment will have to be discarded before long as wholly useless.

With modern commercial methods, only a small initial outlay is necessary, because most appliances are sold on the installment plan. Get the best. Study the catalogs. The manufacturers will gladly answer every pertinent question.

Take, for example, an x-ray apparatus. If you purchase a small apparatus, you will be able to secure fairly good pictures of the extremities. But, this is but a small part of

one's work. You will want to make plates of the chest and abdomen and, for this, a large apparatus is necessary. You will desire to observe the gastrointestinal tract with the fluoroscope; and, again, a small apparatus will fail you.

If you want to apply the x-rays as a remedy for malignant disease, both preventive and curative, a small apparatus will prove very unsatisfactory.

The use of radium for malignant disease is becoming very popular. I, myself, have seen wonderful results with it. But, since the simplest radium equipment costs several thousand dollars, perhaps the economic problem can be solved in any community by combining all physicians, so that each can apply the remedy whenever needed, each having contributed toward the ownership.

There is something else I desire to discuss. Some years ago, I visited a large communal hospital near Berlin (Gross-Lichterfelde), the well-known Dr. Schweninger in charge.

Schweninger used the open-air method in the drastic sense of the word. His tuberculous patients and those suffering from all sorts of skin lesions would, on sunny days, sit for hours and expose either part or virtually the whole body to the sun rays.

This treatment will prove useful in certain forms of tuberculosis of joints, for which any garden, open space or porch can be used, as absolute privacy is not essential.

Schweninger made use of the sun-rays also in lupus by concentrating the rays on the lesion through a large cylindrical glass, held in an adjustable frame. You know from your boyhood days that concentration of the rays through a prism will ignite paper, wood, etc., or burn the human skin. Of course, the glass was held at sufficient distance to be comparatively harmless. Yet, patients were warned to move when the heat became painful.

This observation recalls the wonderful work done by Rollier, in Leysin, through which modern heliotherapy was established and which eventually led to the development of the Alpine, or artificial sunlight, lamp. Similar methods of utilizing sunlight have been employed by several French physicians, more particularly in cases of surgical tuberculosis.

As sunlight is available only during the warm season, I believe the Finsen-light to be the proper means for treating lupus.

Again, my apologies for intrusion. If I have succeeded in interesting a few in a useful subject or in stimulating a few already interested to further investigate the problems involved, this month's brief half-hour Seminar has not been spent in vain.

BEYOND DARK CLOUDS

No matter though we cannot see
The dawn beyond the clouds,
And though at first we're followed not
By fond, approving crowds,
Keep hope and let us travel on,
In paths we know are right,
If we the torch bearers shall be,
More will behold our light.

So let us ever work and pray—
And right will surely win,
Though ere we reach the haven bright,
Come many days of sin;
But still a brighter day shall dawn,
When we the storms have passed,
For sunshine always is beyond—
And clouds can never last.

—Martha Shepard Lippincott.

The General Practitioner

Talks About Professional and Personal Problems
Conducted by WM. RITTENHOUSE, M. D.

The Door to the Medical Profession

CORRESPONDENCE received from our readers on this subject shows that there is a wide-spread conviction, especially in the minds of general practitioners, that there is something wrong in the methods employed at the present time by the colleges in admitting, training, and graduating the men who are to make up the ranks of the profession in the near future. There is a feeling that we are in danger of losing the old-time family physician, and that is something that neither the profession nor the public can afford. The doctors of the future tend to be all specialists, as some of the armies of Latin-American republics tend to be all generals.

As these criticisms come from general practitioners who in numbers make up the bulk of the profession, they are entitled to respectful consideration. At least in part, their truth can not be questioned. So, I purpose to consider from time to time the various aspects of the subject. A comprehensive treatment would require a series of articles. I shall try to make each one short, and shall welcome the views of my readers at all times.

The complaints might be summed up somewhat as follows:

1. The course a prospective doctor must go through before he can possibly find himself on an earning basis, and be in a position to marry and settle down in life, is so long that a man's best years are past by the time he is fairly started on his life's work.

2. The requirement, that a student shall be the possessor of a college diploma before entering on a medical course, shuts out much of the best-possible timber for the making of a family physician.

3. The great mass of the American public desire family physicians who sprang from their own ranks and who are therefore capable of understanding their problems sympathetically.

4. The highly educated college graduate of independent means is not fitted for the work of a family physician to the common people, however valuable he may be as a trained specialist or as a scientific investigator.

5. It is coming about that only the young man with wealthy parents can endure the financial strain of a medical course, and it is well known that the sons of wealthy fathers very rarely possess the qualities that would make them ornaments to their colleges or to the medical profession afterwards.

6. One of the unfortunate results of this state of things is, that a vast amount of good material is lost to the profession by drifting into the ranks of the "pathies" and various forms of irregular medicine. They reason, "Why take a hard course when an easy one is open to us?"

7. Many communities are without adequate medical attendance because so many of the best practitioners are drawn to the cities by the lure of specialism and its high fees.

8. Doctors are not encouraging their sons to take up medicine as a profession, because of the great length of time and the heavy expense involved.

9. In the college course, the amount of time spent on abstract science is out of all proportion to its value.

10. The matter presented in the textbooks is in general too verbose so that it is a physical impossibility for the student to read it all, much less digest it.

11. The examinations are not practical enough; the result being that a student may have the knowledge to make him a capable practitioner and yet fail completely in his examinations; while on the other hand a candidate may pass a brilliant examination and yet be a poor stick as a practitioner of general medicine.

12. The present method, of holding graduating examinations covering the whole field of the medical sciences at one time, is fundamentally wrong, because it is impossible for the human mind to be fresh and well versed on so many subjects at one time. Therefore, it would be better if, when a student has

passed a satisfactory examination in any subject, he were given a credit that is final in that subject. This plan would recognize an educational principle which the present plan ignores, namely, that the object of a college course should not be to cram into the mind all the information possible, but to train the mind in the art of acquiring knowledge. The man who has learned the latter can be trusted to meet any situation that arises.

The adequate discussion of these twelve propositions would furnish material for a good-sized volume instead of a magazine articles. All that space will permit here is, merely, to consider briefly the merits of some of them, and the obstacles in the way of an adequate remedy.

In the first place, I think it is undeniable that a large majority of the great men of the medical profession in the past, and at present, came from an origin involving hard work and limited financial resources; in other words, they sprang from the common people and did not have the advantage, (or, shall I say disadvantage?) of parental or inherited wealth.

I think it will be further admitted that this origin involved a degree of self-discipline, self-reliance and surmounting of obstacles that was in large measure the cause of their success, by developing in them the qualities that bring success. Now, that changed conditions are such as to exclude most of these students of humble origin, it is difficult to see how the result can be other than a loss to the profession, and a greater loss to the community.

On the other hand, when we consider means of remedying this condition, we are confronted with difficulties that seem at first sight insurmountable. One thing is certain: we must not, and can not if we would, retard the wheels of progress merely because the advance of knowledge presses hard upon individuals. Readjustment due to progress always has worked hardship on individuals, and always will. It is out of the question to return to the methods of the medical college of fifty years ago. We could not accomplish it if we wanted to.

But, there is one thing which I believe we can do. We can take from the methods of the past that which was good and apply it to the work of today in such a way as to modify it for the better. For, along with the faults of the medical teaching of the past, there was much that was good. One of the serious faults of this present age is the tendency to reject the good of the past with the bad. We see it in every department of our system of education. We are so cock-sure that everything modern is superior to the ways of the past, that we can not bring ourselves to realize that the world had learned a few things before we came into it.

To illustrate my meaning, let us consider the case of the teaching of grammar. It can not be denied that obsolete and unwieldy methods had gathered about the teaching of this subject. Thirty or more years ago, there came a reaction, and in this reaction the good was swept into the discard with the bad. The result is that most of the graduates of our public schools today are sadly deficient in a useful, practical, working knowledge of grammar. Only those of us who come in close contact with these graduates know how true this is. I have for many years been teaching either medicine or languages to students who have been through the public schools, and the ignorance of grammar that I meet everywhere is appalling.

What is true as to grammar, is true also of some other subjects, medicine included so far as teaching methods are concerned.

But, having already consumed a good deal of space, the subject of admission to the medical course will be taken up in a future issue.

Buying Gold Bricks

From a recent financial publication, I quote the following:

"In one county, people had bought $30,000,000 of Liberty Bonds, and, at the time a semi-official investigation was made, $15,000,000 of these bonds had already been traded for worthless securities."

In the classical language of the street, "What do you know about that?" Mr. Bryan may argue as hard as he pleases against Darwinism. In the face of such facts, we are tempted to believe that the socalled human race did spring from monkeys and that it has not got very far along the road! The discussion of this question might be considered out of place in a medical journal, were it not for the fact that a large part of the $15,000,000 was originally held by doctors. It is a standing puzzle why the medical profession should contain so many easy marks for the glib-tongued promoters of imaginary oil wells, gold mines, etc. It is not that sound financial advice is inaccessible, for every doctor is presumably the possessor of a bank account and therefore in touch with a banker. Now, while not all bankers are sound financiers, yet most

of them are capable of advising their depositors in regard to investments. A doctor who will consult with his banker and with his wife before biting at the glittering bait dangled before him by the eloquent promoter, will seldom lose his money. Many men claim that a woman's judgment is valueless in financial affairs, and when we see how many widows fritter away their life insurance, we must admit that they are not all financial experts. Still, when husband and wife are cooperating in the consideration of financial investments, the wife is usually the more conservative of the two.

When I touched upon this subject, a year or so ago in an article on "Goat Feathers," the letters that came from doctors' wives were strongly corroborative of two beliefs, namely, first, that doctors are readily appealed to by promises of easy money, and second, that in most cases, the wives were not consulted until it was too late.

A curious feature of human nature or, perhaps I should say, of some human natures, is that reluctance to say "no" even to a persistent stranger. The promoter is, as a general thing, easily gotten rid of by saying to him, "I never make investments without consulting my banker. Show your scheme to him, and if he approves of it, I will consider it." They never go to the banker. They know better.

There still seem to be a few people who are not aware that "promoting" is a regular business, and that a real oil well, or an actual gold mine is not a necessary part of it. The suckers bite just as well without.

"But," I hear some reader say, "is not that bare-faced fraud for which the promoter can be punished?" Surely it is. But the promoter knows very well that the victim, when he finds that he has been taken in, feels so ashamed of his gullibility that he swallows his loss and keeps quiet about it? Not one in a thousand will prosecute.

A dozen years ago, a gang of sharks organized a fake pawners' society which was explained in such a way that it seemed to promise fat dividends. The government tried to get a case against them for using the mails to defraud. But they could not get enough of the victims willing to testify in court to make out a case.

If people would only remember that any investment promising more than six percent needs careful scanning, many losses would be avoided. There are, of course, investments in legitimate business that bring more than that, but they do not have to be peddled. They are taken up quickly by men with capital.

Americans are natural gamblers. They take chances on everything—not only financially, but physically. That is the explanation of our high accident rate. The slaughter by automobiles is a glaring example. Men drive at a speed of twenty miles an hour on streets where even ten would be risky. They trust to luck. The financial gambler takes a chance for one or more of the three following reasons, namely, First, cupidity—the desire to get something for nothing; Second, lack of backbone—he can not say "no" when he should; Third, love of excitement—the gambler's fever.

A peculiar feature of this "get rich quick business" is that, when a man has become thoroughly inoculated with the speculation germ, he no longer learns by experience. I knew a doctor who died poor several years ago, although he had always enjoyed a good income from his profession, enough at least to save three to five thousand dollars a year. His first great venture, which was to make him a millionaire, was about thirty-five years ago. It was a complete fizzle. As soon as he had recovered his breath and his bank account, he had another golden dream which ended like the first. But "hope springs eternal in the gambler's breast." (Apologies to Pope). All his life was a succession of visions of riches interspersed with intervals of bitter regret. A couple of years before his death, he said to me one day, "I realize what a fool I've been when I reflect that, had I invested all those squandered sums in sound securities bringing even five percent, and had I compounded the interest, I should be a rich man today." Most doctors who have this mania for speculation would be indignant if called gamblers; but, that is what they are. They are infected with a germ harder to get rid of than that of "flu."

Many people do not realize how rapidly money increases at compound interest. It is slow at first, but, after a few years, it begins to roll up at ever increasing speed in the most surprising manner. Let us take an example. Almost any one can save $100 a year. Placed at compound interest at six percent, at the end of ten years it will have amounted to $1318, (omitting cents). After twenty years, there will be $3,753. After thirty years $7,927. After forty years, $15,514; and at the end of fifty years $29,111, of which $5,000 is principal and $24,111 is interest. A comparison of the principal and interest furnishes food for reflection.

Of course, savings banks do not pay six

percent. However, as soon as a moderate sum has accumulated, it can be invested, and dividends should always be reinvested at once. Most men who are doing a fair business can put aside more than $100 a year. The great point is, to begin the habit of saving. It grows easier the longer it is practiced.

Books for Boys

W. S. M. and several others ask me to give a list of books for boys. The only difficulty in complying with such a request is the great wealth of material from which to select. Several lists could be constructed and all would be good. After I have named a list, there will remain a number of others equally good. It is partly a matter of taste, but the taste of a growing boy should receive some guidance. He need not be urged to read a book he does not like, for he may grow to it later. Still, he should be reminded of the fact that, if he does not like a book that the world has stamped with its approval, the fault is with him and not with the book; just as, when a boy does not like arithmetic, that is the very study he needs. Also, he should have a teacher of the highest skill. Usually, if a boy does not like a particular study, it is because it has not been presented to him in the proper manner.

When a boy's taste has been depraved by reading the cheap trash that circulates among a certain class of boys, the modern counterpart of the dime novel of a generation ago, it may be very difficult to undo the mischief. For this very reason, it is so important to start him early on the best, because, when he has acquired a liking for the best, he is not so likely to take to the "penny-dreadfuls." When a boy curls his lip at the mention of Dickens or Scott, or Grimm, and sneers at them as "back numbers," his case is nearly hopeless. However, the attempt should be made of putting into his hands the best.

When I was a public-school teacher of boys and girls from ten to sixteen, I had a custom of devoting the last hour of each week to reading to them extracts from good literature, on condition that the week's work was satisfactory. It required some care and judgment to make the selections, but it soon became the most popular hour of the week. In the years that have passed since then, I have often had occasion to observe the good effects of those readings upon those pupils. I have been thanked for them by many a man or woman whose hair is now streaked with silver.

Here is a list named at random just as they occur to me:

Robinson Crusoe; Swiss Family Robinson; Grimm's Fairy Tales; Hans Christian Anderson; Bunyan's "Pilgrims' Progress"; Thomas Bailey Aldrich's "Story of a Bad Boy"; Charles Dudley Warner's "Being a Boy"; "Tom Brown's School Days"; "Alice in Wonderland"; "Gulliver's Travels"; "Arabian Nights"; "Don Quixote"; "Gil Blas"; Dickens' "David Copperfield"; and "Christmas Carol"; Scott's "Ivanhoe" and "Lady of the Lake"; Longfellow's "Hiawatha," and "Evangeline"; Dana's "Two Years Before the Mast."

That makes a score, and any boy who will read half of them will never care for trash again. Even we boys of seventy can enjoy them.

2920 Warren Ave.

Imperfection is in some sort essential to all that we know of life. It is the sign of life in a mortal body, that is to say, of a state of progress and change. Nothing that lives is, or can be rightly perfect; part of it is decaying, part nascent. The foxglove blossom—a third part bud, a third part past, a third part in full bloom—is a type of the life of this world.—RUSKIN.

Good Medicine

Let us learn as we go, but not forget what we know

Conducted by GEORGE H. CANDLER, M. D.

From the Dogs—Up!

WITHOUT doubt, you have been assured—as I have—that we are all, to quote the lamented Mr. Mantalini, headed "straight for the demnition bowwows." Which will be hard on the bowwows if we are really as tough and unregenerate as the omnipresent Glooms who stalk funereally around make us out to be. The question is, ARE we so bad and so definitely bowwowward-bound, and, if we are, either as a profession or *en masse*, what is there to do to stop the procession before it is ever-last-ing-ly too late?

To begin with, let us consider conditions among those who practice the healing art—some of them really, others *nearly*, and others, again, queerly. The highly-educated and naturally intellectual "scientist" (of the Xtian variety) regards the physician as a pecuniarily propelled pariah and the physician (to say nothing of the Surgeon—capital "S", please) regards the "scientist" (*var.* Xtian) as a sort of inferior prune, mentally parboiled and predordained to ultimately be bitten by him. The Osteopath derides both the Physician and the Scientist and stays by his bones—making quite a few, moreover, as he goes along. The Chiropractor laughs (rather feebly, 'tis true) at the whole bunch and adjusts things (*"things"* isn't bad, eh?) to his own satisfaction. The Naturopath sends folks back to Nature (ultimately) and the Food Faddist cures every ill under the sun (except ingrowing toe-nail and specific urethritis[1]) with diets which sometimes contain calories and sometimes nothing much except nice wheat-bran and such vitamines as are to be found in spinach. Naturally, a gross-minded person with a predilection for the flesh-pots becomes more or less spiritual upon a prolonged diet of bran and spinach. One might almost think that even his mental processes would become somewhat *muddled* after a week or two on such provender; but, then, probably they weren't what might be termed active when he started? I have a suspicion that it is thus that Spiritualists are developed—especially the type who definitely declare that those who are sick can be healed by "spirit direction." It is to be hoped—sincerely desired, in fact—that the spirits who "direct" the treatments, though disembodied themselves, have learned at least a *little* about anatomy, physiology and pathology—not to mention therapeutics—since they "went across."

To those who really KNOW something about these things, some of the claims made by all these "restorers of health" are, of course, ridiculous (where they are not pathetic), while others, again, should not be dismissed without very careful consideration. The longer a man has practiced Medicine, the more apt is he to believe that Mary Mulligan who for years had a "wasting in her stomach" which defied the combined medicines of ten doctors and two "laying on of hands"—to say nothing of four spinal adjustments and the application of electricity by a (traveling) "eminent specialist"—became entirely well and gained seventy-six pounds when directed by the spirits to stop eating pigs' feet and cabbage and five instead on corn-meal mush, buttermilk and baked potatoes. The *getting well* came about when she gained confidence in her ability to shake off the "wasting", and the gain of seventy-six pounds followed quite naturally from the diet she was ordered. BUT, alas! the Spirit forgot to warn her that "as for man, his days are as grass" and she died (weight 208 pounds) from fatty degeneration of the heart. Which, after all, is better than passing pusillanimously away from a "wasting" in the tummy. The sad thing about it is, that a regular Doctor attended her in her last extremity and, of course, he "lost his patient," thus affording more incontrovertible evidence of the horrible inefficiency of the physician. Had he only "adjusted" the fourth cervical, applied the violet ray, and fed the poor woman on tim-

[1] Some years ago, Mr. Upton Sinclair, that high medical authority, asserted that even venereal diseases might be cured by proper diet.—ED.

othy and clear creek water, she would doubtless have lived to be eighty; as it was, she "passed" in the heyday of her youth, at sixty-nine!

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Now, these are the things which make the people who are "educated"—and read the papers—THINK, or think they THINK. THESE are the "errors" which enable the irregulars to score home-runs and file income tax reports. Unfortunately (for them, at least!) the Doctors sign all the death certificates but keep quiet about the hosts of people they save (for a time at least) from the undertaker, while the other fellows only present "marvelous cures" and shun the final certification as they do the measles. And, my brothers, isn't it consoling, to say the least, to quarantine a Scientist with measles? Especially when the Healer has advanced it as his (or her) opinion that it is "heat rash". One naturally feels elated and hilarious about the whole thing—until he begins to THINK (really and truly *think*) and then he, himself, doesn't chortle quite so much for, he recalls the fact that he doesn't *quite* know WHAT measles is, what causes it or how to stop it. Finally, he trips up on the "self-limited-disease" theory and feels exceedingly cheap. At least he does, IF he is intelligent. And then, right away, perhaps, he has to make a differential diagnosis between rubella, rubeola and scarlatina—and about that time devoutly wishes that some Spirit *would* slip him a little definite information.

Not for a single moment, of course, would I affirm that there are *not* men in the medical profession who can differentiate one disease from the other at any stage and in any light, but I humbly confess that I have made mistakes (even found Koplik's spots when they "were not"), and I know quite a number of highly estimable and supposedly erudite practicians who have also fallen headlong into this particular pit, though "on the *third* day they rose again." If WE do such things once in a while, may not the Healer *think* he is right in diagnosing "heat rash", or the Osteopath *think* the eruption comes from a pinched nerve? The great trouble is that their thinking capacity is limited. How can a man think intelligently along lines of which he has no *real* knowledge?

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Here then, it appears to me, lies the crux of the whole situation: the obvious answer to the assertion that we, who practice Medicine, are, with the rest of the folks, "going to the dogs." We are NOT—we are going further and further from them every day. We know more than we ever did; possess more positive information about the normal, vital, and disease processes than we ever had. But we still have very much to learn. Naturally, the man possessing most knowledge and thinking hardest arrives at and presents certain conclusions which may or may not be absolutely correct. Other thinkers possessed of equally dependable knowledge must confirm and reconfirm his findings before they may be regarded as established facts. However, as various brands and dilutions of medical and quasi-medical knowledge are today very generally disseminated, we have all sorts of thinkers and an infinite variety of theories, some absolutely sound, some worth "tabling" for future consideration, others too tenuous to tie to, and others, again, so bizarre that they are almost attractive. These, however, the real physician manages to shun, leaving the Megaphone Medico who always accepts them to shout aloud the wonders HE can perform—for a fixed price. The flamboyant claims and published successes of these gentlemen further befuddle the more or less educated and analytical minds of the people at large and serve to bring more odium upon that still large body of professional men who refuse to be stampeded and prefer to do the things they KNOW are right and proper to experimenting—even at a considerable profit—upon their trusting patients.

After all, tell me, *how* is the average man to differentiate between the claims of the men who "cure fits," "hold hernia," "render childbirth painless," "restore lost manhood," etc., "cure cancer with radiolite," or "straighten cross-eyes at one sitting" and the bonafide announcements of great medical advances of which they learn, as a rule, only through the lay press? Years ago, people did not "think (so much at least) for themselves," they did not receive half a dozen more or less informative magazines and the Sunday editions of "big city papers" each week or month. Startling illustrated articles about the human internal economy or the origin of the species were not perused by Aunt Samanthy or Bill Blithers during the quiet of a Sabbath afternoon, and, when anything went wrong in their families, the local doctor was called in to correct things, and his word was law. If—as occasionally happened—he found the case beyond him, he either called in competent counsel or sent the patient to some hospital where the best treatment available could be obtained. Today, Aunty demands X-ray treatment (or something of the kind) for her salt-rheum, and Bill, if

he has a pain in the right lower quadrant of his abdomen, has to rush off to Rochester to have his appendix taken out. No siree, Bill reads, he's "eddicated," *he* is, and "knows enough not to let any ordinary 'doc' monkey with *his* innards." And, as a matter of fact, one can't quite blame Bill. The pity of it is that, after all, he is only a little bit "eddicated" and can not realize that his own doctor is really possessed of knowledge and quite capable of removing his appendix, or, better still, perhaps saving it from the scalpel.

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Yes, today everyone is THINKING more or less effectively; there is, one might say, almost a plethora of thought, and it is becoming very difficult for even the brightest mind to comprehend even half the new and valuable ideas that are being formulated. Many of them, indeed, one never even hears of. It is an era of unprecedented mental activity; we are evoluting so rapidly that we almost—though not quite—catch up with our own coat-tails and, as a result, everyone is more or less dissatisfied with the tried, the obvious, the dependable, and wants to test something new, startling, bizarre and expensive. "The more it costs the better it is" has become almost an axiom, the Ford, perhaps, being the most striking exception to the rule.

We ordinary physicians, who are caught in the hurly-burly, must keep cool, hold fast to that which has proved good and improve our methods as fast as we may with safety. We should above all things remember that the mere statement that such a thing is so does not make it a fact, and we simply must not allow ourselves to forget all the things we do know, in a frenzied effort to learn every new thing that is advanced. We have only so many years to live and, if we are wise, we remember that what we really KNOW today has, in the main, come to us through the labors of our fathers and through hard experience. The startling innovations which surround us will—some of them—be accepted as matters of fact by the next generation, while others, again, will be entirely forgotten before *finis* is written even for us.

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It is obviously quite impossible for *any* practician to know everything he should know about radiology, endocrinology, bacteriology, gynecology, surgery, obstetrics, dermatology, ophthalmology, laryngology, etc., etc., etc. (I have a horrible suspicion that there are only a few men who know ALL about any one of them!), to say nothing of the various "therapies" and minor "ologies" which are here one year and dead the next. Therefore, the best thing one in general practice can do is, KNOW enough of each to be able to extend generally effective service and stand ready, when occasion demands, to refer his patient to someone better equipped in some particular direction.

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We, as Doctors, are NOT going to the bow-wows, and I for one do not believe that the usefulness of the General Practician is drawing swiftly to a close. Specialists we must perforce have; the more properly conducted hospitals there are throughout the country, the better, and, here and there in the larger towns, group practice may (probably *will*) prove desirable. But, for the next hundred years anyhow, there is still going to be a field for the "family physician", and it behooves those who elect to practice in that field to perfect themselves in certain fundamentals and avoid the "frills" which appertain exclusively to institutions and to the elaborately equipped offices of Specialists. Today, as heretofore, a woman can be delivered with perfect safety in her own home, and it is a far from difficult matter to alleviate the pangs of childbirth anywhere at any time. Any doctor who knows his business can reduce a dislocation or set a fracture in a domicile just as well if not quite as conveniently as he can in a hospital and—save in isolated communities, of which there must always be many—it will be a simple matter to employ the x-ray in obscure cases. All *minor* surgery can be done safely, satisfactorily and scientifically by the doctor of ordinary ability, and he is an unwise or timid practician who "refers", for example, all his tonsil and adenoid cases to a specialist in the nearest city. He might as well decline to do a circumcision or enucleate a dermal cyst.

The general practician simply needs to buck up and definitely inform the people who depend upon his services that he is prepared to personally take care of ninety percent of their ills and that in the other ten percent he will at least be able to intelligently advise them how to proceed. Moreover, be it remembered that, in the average general practice, internal medicine plays a very large part, and the man who really attains the greatest success is the one who understands *therapeutics* the most thoroughly.

In a word, the general practitioner must be able to make a real diagnosis and administer the right remedy for the conditions present in the individual under observation; *not* institute some highly extolled routine treatment for a

named disease which the symptom complex may offhand lead him to think exists. It is by doing this very thing and by merely administering pain relieving agents where removal of a cause or correction of a condition were imperatively demanded, that the average doctor has slowly but surely impaired the standing of the profession in the minds of the people. Failing to get definite relief, the people have sought the services of irregulars, they have become adherents of some cult or undergone operations which, often, proved curative mainly by reason of the rest and the intelligent care they received while at the hospital. Barring the operation, the home doctor, had he made any real effort, could have attained precisely the same results. Moreover, some of the operations (necessary ones) might have been done by him also—to the advantage of his own and the patient's bank account.

Let those who are still "practicing Medicine," or purpose to do so, take courage and exercise good common sense. The old order of things may be changing, but we are not going down *to* the bowwows, now or in the near future. On the contrary, are headed *from* the dogs. UP!

MINER'S CONSUMPTION

The results of an investigation of miners' consumption in the mines of Butte, Montana, which extended over a period of four years, are given in Technical Paper 260, by Daniel Harrington, mining engineer, and Dr. A. J. Lanza, of the United States Public Health Service, just issued by the United States Bureau of Mines. In the course of the investigation more than one thousand miners were subjected to physical examination, and approximately 42 percent showed definite signs of dust injury to the lungs. It was found that the death rate in Butte in one year from tuberculosis was nearly 13 times as great as that of the State of Michigan.

It has long been recognized that workers in hard-rock metal mines are subject to diseases of the lungs, say the authors. Extensive investigations in England, in British possessions, and in the United States appear to have revealed that the socalled miners' consumption, or miners' phthisis, is produced by the mechanical irritation of the lungs by particles of dust of rock containing free silica; that dust is dangerous in proportion to the amount of free silica or other hard, sharp, insoluble material it contains; and that the particles of dust small enough to enter and remain in the lungs measure less than 1/2500 of an inch in longest dimension.

Miners' consumption is mechanically produced, is neither contagious nor infectious, develops slowly, and by the production of scar tissues gradually impairs the function of the lungs. The length of time necessary to produce the disease depends on the length of time the miner has worked in rock yielding hard, sharp, insoluble dust, the amount of silica in the dust to which he has been exposed, the steadiness with which he worked, the intensity of application of the man to his work, the actual nature of the work he has done underground, and to a great extent on the general conditions under which he works.

Miners' consumption may in itself produce disability and death. As a matter of fact, this disease so predisposes a man to various infections of the lungs and bronchial passages that few victims escape such infection. Pneumonia and tuberculosis are especially likely to occur, and the vast majority of miners with a considerable dust damage to the lungs contract tuberculosis and ultimately die of it, particularly if exposure to the dust continues. In such cases, tuberculosis runs a more rapid course than in the ordinary individual.

It is also recognized that, as the larger mining camps become more crowded with consequent gradual deterioration of housing conditions, the probability for tuberculosis infection increases, and the infection tends to become more and more prevalent and to occur earlier in cases of miners' consumption. The menace to the life of the miner and the menace to the community in general, from the spread of tuberculosis to the miners' family and associates, becomes more evident from year to year.

The Butte investigations started in 1916 and extended through four years. Much progress has already resulted from pointing out dangerous conditions and practices and from the men and the mining companies heartily attempting to apply remedies. There has been much experiment with the use of water drills for drilling upper holes in the hope of eliminating the great quantity of dust produced by the drilling of dry upper holes, and several machinery concerns have given and are giving much time and expense toward the development of a more efficient wet drill for such holes. At some mines, water pipes have been placed in drifts, stopes, and raises, and men are required to sprinkle dry rock piles, ore and waste chutes, manways, and other places where the handling of rock produces considerable dust.

Let's Talk it Over

A Retrospect

IT is 9 a. m., March 17, 1922, and I have just returned to my office, after an early-morning visit to the home of a typhoid-fever patient. On the way back to my office, my mind became vividly reminiscent of the past and my thoughts revealed, in retrospect, some very interesting experiences, in the treatment of several typhoid-fever cases, which may be of interest to the many readers of "our own" medical journal.

Eighteen years ago, I formed a partnership with a physician who was then old enough to be my father. He had been an active, conscientious physician for many years; a fine old man beloved by a large clientele. He was classed as a leader in the local medical field, and was very successful in the treatment of the sick; his services were almost constantly in demand, both day and night. He had begun practicing in the days known to us as "pioneer", when the saddle-bag was in vogue.

He had located in a village of fewer than a hundred inhabitants, but his territory of service extended far beyond the limits of the little country place, for miles and miles, north, east, south, and west, over rugged hills, through dismal swamps, delightful dales, and shady woodlands--ever on the trail of disease. He is living today, at a ripe old age, his mental faculties still unimpaired by the onslaught of remorseless time.

He always meant to do his very best, but the gnawing fatigue of both mental and bodily service would cause him, at times, to be somewhat negligent and indifferent to thoroughness of physical examination of his patient—and he would recognize too late his remissness of bounden professional duty. Unfortunately, this is often true of many of us, even in this day of medical progress, and we are equally guilty of negligence in our treatment of the sick. Fortunate, indeed, is the patient that employs a physician who shows an intensely wide-awake interest in his case. Laziness and indifference tend to put a physician just where he belongs—on the shelf of inefficiency.

It was during the first year of our partnership, when a local epidemic of typhoid occurred, that we indulged in our first friendly controversy with regard to the treatment of the sick under our care. At the time, he himself was treating no local case of typhoid fever, but the rest of us physicians were kept quite busy. He tried his very best to convince me that the cases we other physicians were treating were not really typhoid, but only an autointoxication which would clear up nicely, after a few days, with the aid of calomel and castor oil.

A week passed and he asked me, one morning, if I had more W-A Intestinal Antiseptic tablets than I really needed for my typhoid-fever cases. I looked up at him smilingly and said: "What do you intend to do with them?"

"I want to use them in a typical case of genuine typhoid fever," he replied, and his eyes sparkled with amusing merriment.

I looked into his laughing eyes and said jocularly: "I would like to see your typical case of typhoid-fever, for they are mighty hard to find, you know."

"Well," he answered jovially, "I'll diagnose your next case of autointoxication, or seeming typhoid-fever, for you." And he smiled pleasantly as he gazed down at me as I sat at my desk. I assured him that he would surely be called to do that very thing, in my next case.

The following Saturday morning was dark and gloomy; a cold, misty rain was falling and the country roads were "a fright." The doctor came down to the office, about 9:30, feeling rather blue, as he expressed himself.

He turned to me and said, with serious face: "I wish you would go with me to Centerton, this morning."

"Why, what's the matter?" I asked, with keen interest.

"The parents of my typhoid-fever patient requested me to bring you along with me," he replied wearily.

"Is your patient worse?" I asked gently.

"No, she seems to be coming on very nicely, but they are somewhat worried," he answered, with sad, thoughtful face.

I rode with him over those awful muddy roads, three exceedingly long and wearisome miles, to the little hamlet of Centerton, where he had hung his first professional "shingle" and

entered upon his long, useful career as a family physician. I observed that he was unusually quiet and taciturn, and his thoughts were, no doubt, riveted on the patient whom he had delivered into the world, nearly forty years ago. He had lived and boarded with her parents during the most of the years he practiced in the hamlet, and they were very dear friends to him, indeed.

But, when we came to the home of the patient, he was again his former genial, optimistic self. He introduced me to the parents and patient, in his customary happy manner, with no indication of any doubt in his facial expression as to the character of the disease afflicting his patient and the ultimate recovery of his typical typhoid case, and with that same assuring smile that invariably manifests itself on the faces of those of us physicians, who feel, and seem to really know, occasionally, that we are right in our own diagnoses.

I stepped quietly to the bedside of the patient, and did as almost every physician does first in his examination at the bedside of a patient; namely, placed the tips of my fingers on the wrist of the patient and counted the pulse beats. Since those primitive days of my practice, I like to first become a little acquainted with the patient—if that is at all possible—before I feel and count the pulse beats. I delight in observing the personality—and idiosyncrasies, perhaps—of the patient, and the peculiar, characteristic facies presented by the case, first of all.

As I felt and counted that pulse, and observed the facial expression, I began to entertain grave thoughts with regard to the infallibility of my aged partner's diagnostic wisdom and his ability to judge correctly all prominent symptoms presented by a typical, genuine case of typhoid fever. I also began to suspect that his typical typhoid germs had failed, utterly, to assert their insidious and legitimate purpose and power in the diseased young woman.

I arose from that bedside and stood there at the side of my good friend's typical typhoid-fever case, halting hesitatingly between two duties—one to the absolute truth and one,—well, my dear brother of the noblest, frankest, most divinely spiritual, and universally helpful of all the professions of legitimate endeavor, you know what I would say.

After stilling the quiet voice of conscientious impulse to do my bounden duty to parents and patient, and, after saying to that ever present arbiter of questions involving right and wrong, "Peace, be still," I extended my examination to the abdominal region—where I expected to find the real cause of the patient's illness. As I proceeded with my examination, I felt, intuitively, that my partner's eyes were riveted upon me. He stood by my side and watched my every movement, with intently interesting and understanding eyes—as I learned shortly afterwards. Completing my examination, I turned to him and said lowly: "May we retire to another room?" He nodded his head slowly and led the way out of the room. When he had closed the door behind him, he turned to me with anxious face and said, in subdued voice: "You don't think it is typhoid, do you?"

I looked at him gravely and compassionately, and replied gently: "Why do you think that?"

"Because of the grave look on your face and the way you examined her," he answered quickly.

I gazed with unfeigned pity on the sad, worried face of that good, old, faithful, conscientious family physician and said feelingly: "It has never been typhoid fever—it was appendicitis from its inception, and peritonitis has so far developed that death is inevitable within twenty-four hours."

Should I live to be a century old, I shall never forget the look of awful horror and soulful remorse, presented by my aged friend and colleague, when he finally realized just what my words expressed. He stood with bowed head and trembling limbs, and I went silently to his side, placed my hand gently on his shoulder, and said tenderly: "Come, do not worry—we all make mistakes, you know. I'll tell them there is no doubt about your diagnosis, and that the case is complicated seriously by an inflammation of the vermiform appendix." I religiously refrained from saying appendicitis, for that had a tendency, in those days, to frighten patients badly.

I assured the anxious parents that the doctor's diagnosis was correct, and, notwithstanding the serious condition of their daughter, the doctor would do all that any other good doctor could do. Oh! what a reckoning for *some* doctors—on that great and awful Judgment Day!

On the way back to the office, I kindly suggested to the doctor that, in the future, we should not let our minds become obsessed with typical symptoms only, in the course of a disease, but we should be guided always by those symptoms that were most prominent in each case. He acknowledged that he should have studied the symptoms of his case more carefully, and should have been influenced by deciding signs upon which he should have based his diagnosis, rather than to first name the

disease, on the spur of the moment, and have the symptoms conform with the diagnosis. We are all too prone to make snap-shot diagnoses, and then imagine that we find symptoms confirming them.

The following week, I was summoned to a home to administer to the wife of a farmer, who was suffering from uterine pain with alarmingly increasing hemorrhage. She was in the fourth month of pregnancy, and I advised consultation because it was my opinion that the very best way was to empty the womb as soon as possible. A former family physician was called and I requested my partner to accompany me to the patient's home and participate in the consultation. The doctors agreed with me with regard to technic to be used in the case.

While I was attending to the patient, the doctors were in an adjoining room, where I joined them after completing my task. As I stepped into the room, I heard them discussing the Centerton case. The former family physician turned to me and said earnestly: "I was just telling the doctor that, if I had a severe pain in my belly and he would diagnose it appendicitis, I would want him to operate at once, for I would much prefer to run the risk of an operation than to let the disease run its course." "Were you called to see the Centerton case?" I asked him eagerly. "Yes, I saw her with the doctor, on the morning of the day she died. The doctor told me that you had seen her the day before and diagnosed the case appendicitis. I told him then that it was too bad the disease was not recognized in its incipiency, for an operation would have saved her life", he said gravely.

I looked from him to my aged partner, whose face betrayed the keen agony of his soul, and I felt that he had been punished sufficiently for the awful error he had made in diagnosis in that "genuinely typical case of typhoid fever." I remained with him another year, and refrained religiously from any reference to that fatal diagnosis; and the good doctor never again chided me about my cases of simple autointoxication, or seeming typhoid.

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During the second year of our partnership, I was called to treat a young married woman for typhoid fever. She was in the fourth month of pregnancy and aborted on the third day of the disease. I succeeded in my abortive treatment of the typhoid fever and on the tenth day I made my last visit, the temperature being normal on the afternoon of the day before.

When I informed the young woman that she was all right and did not require my services any longer, she sat up in bed, clapped her hands in ecstasy, and then exclaimed joyously: "*Now,* I can have all I want to eat!" I joined heartily in her joyful mood, but added seriously: "You must be very careful a few days longer about your diet, for, in almost every abortive case of typhoid fever, the most dangerous time is the convalescent period; because it is most difficult to make a patient and his relatives and neighbors believe he really had typhoid fever." I turned to the mother and urged her to keep her ravenously hungry daughter from getting too much to eat. The mother claimed to be a practical nurse and had charge of the case; she promised to comply faithfully with my earnest admonition.

Unfortunately, almost immediately after I had left the home, the husband went to a local milk depot and bought milk that was shipped in the day before. The convalescent young woman drank the milk. Early the next morning, the distracted husband ran to my office, across the way, and frantically urged me to hurry to his home to see his wife, who was rolling about on the bed, in great pain and agony. I hurried to the patient and found her suffering most intense pain in her abdomen. I suspected that my instructions, with regard to diet, had not been adhered to, and I turned to the mother and asked her what she had given the patient. She told me about the milk and that her daughter had drunk nearly a quart of it, at one time. The bowels were markedly tympanitic, and peritonitis had already developed. I saw, at once, that death was inevitable—and I told the husband and mother that it would have been far better for the wife and daughter, if they had believed me rather than the neighbors, with regard to the cause of her sickness. The young woman died that same day, at the setting of the sun, a victim of unbelief in the skill and diagnostic judgment of her physician.

The professional interest of three of my colleagues was made manifest on the day the patient died—after I had informed the husband and mother that they should feel at liberty to call any doctor, or doctors, they might desire to see the case. The physician who was first called summoned the other two; he gave no thought to matter of cost to the husband—his only desire seemed to be to prove that I was absolutely wrong in my diagnosis and treatment of the case. However, he is still to be commended for his earnest effort, for he really did try to prove his charge against me.

The husband told me the next morning that

the doctor placed his hand in the vagina of the nearly moribund patient, withdrew it after a stated interval of grave thought on his part, slowly conveyed the polluted hand to his delicate nostrils, sniffed the offending odor, then turned to his deeply interested colleagues, held the hand up before their horrified countenances, and said, in sepulchral voice: "That's what's the matter—an awful, alarmingly serious blood-poisoning!" And the ethical helpers, called for the purpose of assisting in the "cooking of a fellow practitioner's goose in the foaming kettle of professional prejudice and deceit and jealous endeavor," nodded their wise heads in solemn approval of the exalted wisdom and diagnostic ability of an accepted laborer in the divine kingdom of Esculapius.

To illustrate, still further, the commendable wisdom and ethical consideration, in behalf of my professional welfare, of the three physicians who were, no doubt, deeply interested and unwontedly concerned in the case, I shall give the "conclusion" of another physician. This old doctor served faithfully in the Civil War as a surgeon, and lived next door to my patient. When he was told that "she lost her baby," he laughed uproariously and said humorously: "That young doctor must be a mighty smart cuss. Who ever heard of a woman aborting in typhoid fever!" and he ended in another spasm of hilarity, seeming very much pleased with his effort. Really, I hugely enjoyed the old doctor's joy over my mistake in diagnosis, as he saw it, much more than the tactics of the three other doctors—for he was really honest in his "conclusion" and knew no better with regard to the ravages of the typhoid germs. He believed just what he said, but I doubt very much that the same thing could be truthfully said of my three colleagues. The financial gain to the three physicians was the same as mine—the account is still unpaid.

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In August, 1908, I spent a week in Chicago doing post-graduate work. I had the supreme pleasure of meeting that splendid friend of every doctor, the genial and obliging Doctor Burdick, who conducted me through the "Abbott buildings." An hour passes quickly—when you are with Doctor Burdick—and that was all the time I could devote to such digression. I wanted to get acquainted with Doctor Abbott, but I had to be content to see him rush down the stairway and out of my sight, almost in the twinkling of an eye, to other fields of supervision and earnest encouragement.

During the month I spent in Chicago, typhoid fever cases developed in my own home territory. As I stepped from the train, on the evening of my return home, a young man came up to me and told me he was waiting for me. He accompanied me to my office, and I found that he was ill of the fever. When I informed him that he had typhoid, he was not surprised for two of his sisters were in bed with the disease, and had been in bed for four weeks.

When I called at the farm home, the next morning, to see him, his mother called my attention to a younger son, aged about fourteen years, who was lying on a couch. After an examination, I informed her that the boy was sick with the fever, and she began to weep. I asked her why she was weeping, and she told me the boy would not get well because he had a bad heart. The boy had had a very serious attack of rheumatism, the previous winter, and his heart was not the very best. I told her not to worry for the boy would get along fine—because he would lie quietly in bed and take his medicine promptly without any worry of any kind. His temperature was normal on the afternoon of the ninth day; he got out of bed on the tenth day and went to work on the farm a few days later. His brother was discharged on the fifteenth day.

It may be of interest, in way of contrast, to say that my colleague treated the two young women in the same house by "immersion in cold water", using a galvanized watering trough that the father had made for that especial purpose. The two young men stubbornly refused to be treated in that manner; and that is why I became the attending and, subsequently, the family physician. The watering trough leaks badly now.

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How do I treat my typhoid fever cases? In the very simplest manner possible. I'll tell you *all* about it, freely and gladly.

When called to treat a case, I begin treatment with a generous dose of saline laxative, and then follow up with two "intestinal antiseptic" tablets (sulphocarbolates) every two hours, with copious drinks of fresh water. I instruct the nurse to give the patient a slightly saline enema, morning and evening; and more frequently if necessary. After the temperature has reached the normal point, which occurs usually on the ninth day of the treatment, I give a granule of strychnine arsenate after meals. Of course, it is understood that the size of doses must be increased or decreased, according to effect.

I give the patient freely of lemonade, orangeade, fruit juices, grape juice, toast and poached eggs. I feed to the limit, watching the tem-

perature, morning and evening. If you will try this treatment, you will find it the very best you ever used.

BURTON R. MILLER.

Tiffin, Ohio.

"MEDICAL LEGISLATION"

In the article appearing under the title heading this paragraph [CLIN. MED., April, p. 294], we have mentioned that, according to Doctor Balcom's information, the Hon. Julius Kahn, of California, who introduced a certain joint resolution before Congress, is a Christian Science leader.

A communication from the Christian Science Committee on Publication for Illinois points out that Mr. Kahn is not, nor has he ever been, a Christian Scientist. We are requested to post this correction "in fairness to Mr. Kahn, *The Northwestern Christian Advocate* and to Christian Scientists." This obligation we desire to discharge herewith.

DEATH OF EDWARD K. DUNHAM

I have learned with great regret of the death, in New York City, on April 16, of Dr. Edward Kellogg Dunham. For many years, Doctor Dunham was professor of pathology at Bellevue Hospital Medical School, and he was a recognized authority on pathology and bacteriology. During the War, he served in the Medical Corps of the Army, with the rank of Major, devoting most of his time to the study of infectious diseases in various camps. During this period, he became particularly interested in empyema and its treatment. At the time of his death, he was continuing his studies upon this disease and arranging for final presentation to the medical profession of a large fund of material which he had collected.

Doctor Dunham was a brother-in-law of Dr. H. D. Dakin and was associated with him in the study of the antiseptics which Doctor Dakin made. He was joint author of Dakin and Dunham's "Handbook of Antiseptics." Doctor Dunham once told me that he made personally, in his own private laboratory, the first chlorazene manufactured in America. This was immediately following the production of this antiseptic by Dakin in his laboratory in France, where the latter was working at that time with Carrel.

It was my great pleasure and privilege to know Doctor Dunham personally. He was an unusual man, exceedingly able, cultured, and a gentleman to his finger tips. He loved research work, and devoted most of his time to it. His passing means a great loss to us all.

ALFRED S. BURDICK.

Chicago, Ill.

HOODOOED TO THE END

[The story here related possesses an intense human interest and, no less, concerns physicians directly. Aside from its story-value, it contains various problems awaiting solution and which are the doctor's business, at least in part.—ED.]

I think it was in 1880, that the Dorens concluded that the state of Arkansas was more or less of a hoodoo region. It was about that time, they pulled out from there, anyway.

They came, pointed in no particular direction, and finally settled in a small lumber village on the Washington side of the Columbia River.

Not counting two children, a girl of six, and a boy of eight, they made up an odd combination. First off, there was Wyman Doren, big, husky, crude and unlettered. Then there was Melissa, Wyman's wife. She was pale, with a rather "run-down" appearance, listless, slatternly and illiterate.

The two children were chips from the mother's side of the block. Withal, for their ages, they were not so much undersized as they were peevish and ill-tempered. They were almost always the under-dogs in the rough and tumble games with their Indian, half breed and white playmates of the village. Seemingly, they were continually occupied in in running, hand in hand and crying, home to mamma. Although only a kid myself, I used to feel sorry for them.

Darwin Doren was a brother of Wyman, and two years younger. Tom Frazier was Melissa's brother, and two years older. There you have the "outfit" as they arrived long, long years back in the far unsettled West. They had no definite aims at the time; neither had they money.

Darwin and Tom were just out of college. The former, a graduate of a well-known eastern school of medicine and surgery; the latter of a military academy. These facts add to the oddity of the family; for, with no illustrations to guide them, neither Wyman nor his anemic partner could tell whether a book or newspaper was upside down or not.

Again, Darwin and Tom were gross misfits in the political, social and industrial atmos-

phere of that time. Today, they would have been termed Bolsheviks and ultra-reds. It isn't recorded just where, nor how, they imbibed the doctrines that placed them somewhat out of the general run of affairs in those days; but thusly they stood. However, there were so few who could intelligently hold to an argument on economics with them that they were usually by themselves.

Darwin was a cool, collected, scrutinizing individual. He was rather good looking, although a deep wrinkle between his dark eyes gave him the appearance of continually frowning. For the time being, he was resting up after the five years' close attention to study, and he didn't step an inch out of his way to make friends. No one ever had an opportunity to learn how much of a likable fellow he was.

Tom Frazier was continually bubbling over with good nature. Still, like Darwin, he was slow in friendship. There was a certain aloofness about him in spite of all of his joviality. He was abundantly healthy. Wyman Doren said one time:

"Dat 'ar Frazier boy, he done got too much mirf and healthfulness, suah. I 'low he could give dat 'ar 'oman o' mine a good half o' his exuberance and still be a pow'full, happy-go-lucky animal."

A pained expression came over Frazier's face at this, and he studied the ground a minute before speaking.

"Honestly, Wyman, if cutting off my right hand would give sister an ounce more of good health, and make her a bit happier, I'd have Darwin, the M. D., begin on the operation now."

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The sawmill village, where the Dorens finally found themselves, was wholly a company affair. The land, the houses, the mills, the store, the docks, the school, the boarding and sleeping rooms were company owned and company controlled. The rules and regulations of the village were iron clad and steel riveted. Wages were low and the working hours 6 to 6 with a 40 minute dinner "hour." All purchases had to be from the company store and prices ranged up to what the traffic would bear. House rents for rough lumber shacks stood at $5. per month with water free. It was an isolated village, those days, and the only way of getting out was by an occasional boat on the river in front of town, or by the dark, still forests that reached and reached in boundless and trackless immensity back of the place.

True, there were constantly arriving and departing deep-water square-riggers. They came from the seven seas, sometimes in cargo, sometimes in ballast, but leaving always with holds filled and decks towering with resinous smelling lumber.

The company didn't really desire single men as employes. The turn-over in "unattached" help was too great. Married men with large families suited the lumber lords better for, be it known, once in one of those slave pens that flourished then, and do yet in decreasing measure, with dependents, and the unfortunate was anchored. There was no sign: "Abandon Hope, All Ye Who Enter Here." But, there should have been.

Wyman secured a job, wheeling sawdust and slabs at $35. per month almost as soon as he had gotten the few family's belongings unpacked beneath the mossy shingles of his two-room wickaup.

Darwin, seeing the perils in the big mills, thought the field good and ripe for one of his learning and ability. He made inquiries and was promptly told to "roll up and roll out."

"What! and why," exclaimed the manager, a cold-blooded and austere individual with lips as thin as a razor slit in a piece of frozen beer, "why a Doctor? Well, I declare!! Say, when a hand gets killed, we plant 'im. We don't have sick people here. They're either workin' or they're dead. No, we've no room for you at all, at all. And say, again; I notice you and that brother-in-law of yours hangin' around, loafing and talking with the hands at the mess house after supper times when they should be in bed restin' for the next day. Now, get this!! you're either laborin' or you're not here. You can't board with your brother, you can't. You'll work in the mills and eat what we feed you or you'll get off the spit by way of the creek or the jungle. Suit yourself. If you don't vacate promptly and gracefully—barrin' turnin' to at 6 in the mornin' at the slab piles—you'll go with a sore head, before the mast, on a lumber packet. This 'll be soon, too."

That settled it insofar as Darwin was concerned with the slave-yard manager. There was no room for argument, but he looked the spleeny speaker steadily and straight in the face as he listened. There was a flash of color in his own cheeks when he replied, but his words came low and calm enough.

"I guess you are the big boss man here, all right—or all wrong; and your word is law. Tom and I shall make ourselves scarce willingly. Before going, however, I'll tell you

something, Mr. Whipwielder. In your own eyes you're a power; something big, granite-like, immovable. In my eyes you're a sort of sycophant—a belly crawler—before those who fatten on the blood and tears you, for a few paltry dollars, drain from the miserable toilers in your mad-house of noise, dust and death. I know you quite well. I've made something of a study of you; not here, today, but in other industrial centers; yesterday and the yesterdays before. You're a heartless being and there's little sympathy in your make up. But, before a fleeting six months skims over your head, you'll be looking for some one with a heart and with pity. You'll rot away, and as you rot you'll grovel for help and a word of cheer. Mighty few will know you then, I'm thinking, and with those very few your masters won't be numbered."

The family talked over the manager's ukase, that evening. Tom and Darwin were going on the first boat. They were ready. Melissa cried and the children whimpered. Wyman commented thusly:

"It suah 'pears like we's jinxed pow'full bad, don't it? Here, t'ree ye'rs ago we—Meliss' an' me—teams it from Tennessee into dat 'ar Arkansah kentry. We humsteads a level 160 acres o' prarry land, and de fust ye'r we done get a drou't dat shrivels de cahn and stuff to a brown coal. Den comes de secon' ye'r with more hopper-grasses den we got seeds in de fust place. Den dere's de third ye'r, hand runnin', and a tahnado jes blows eberything away 'cep de well and de post-holes. And now here we is wif cans tied to de tails of two-thirds ob de men folkses. Yes, sah, we's suah hoo-dooed. What we gwan do 'bout it, hey?"

Passing strange it is, but true, that within a brief half year not one of this gathering, nor the mill manager either, was above the clover.

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Before an opportunity came for the men to leave the village, diphtheria stalked cavern eyed and throat clutching among the mill workers and the children. Darwin and Tom rolled up their sleeves and met the bearer of tragedies more than half way. They fought him day and night for many days and nights. Fortunately, in one regard, the manager's daughter—a lass of a dozen summers—was with the first stricken. This was so far from the company schedule and the things ordained by the lumber barons that the miniature monarchy collapsed, and Doctor Darwin Doren took complete charge of "the spit," with Frazier a cheery and hard working lieutenant.

There were upward of 60 cases. There were 10 new graves in the yellow clay of a burnt-over patch on the fringe of the big spruce trees. It was all over but the heart breaks, within six weeks. Melissa Doren, her two children and the manager's daughter were numbered with the dead. The grim reaper had played no favorites.

Doctor Doren remained in the village for a short time, to help those who rallied slowly, but Frazier hied himself to a seaport town on the Oregon side and settled in the district of red lights, gambling halls and dance houses.

Following the lines of least resistance in the endeavor to ride on the backs of others and to live without producing anything, cards and the green cloth appealed as the quickest method with least capital. So, Tom took to gambling. He didn't like it either; but, with the knowledge that the average toiler, even in the professions, received in wages or salaries but one-fifth of what he produced, he dropped all scruples and reached for the colored pasteboards and chips with, at least, an outward show of enthusiasm. Being energetic, resourceful and constantly awake, he made winnings from the very start. His introduction to the gambling fraternity, and to the whole city in fact, came almost as an explosion when, with a single quarter of a dollar as his entire capital and a first bet, he cleaned up $4000. in one sitting of an all-night séance at faro.

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The Doctor took up quarters with Frazier after his trials at the lumber mills. He made no attempt to practice, but soon there came plenty to do. One day, a small barkentine sailed into the Columbia with all available space packed with Mongol coolies. It was before the exclusion act and many vessels, by fair winds and foul, free and by tack, crossed and recrossed the big Pacific with just such cargoes. It was nothing new; but this time this particular wind-jammer had more than Mongolians aboard. Unknowingly, the supercargo loaded on at his Asiatic port millions of smallpox germs. The disease broke out with virulence when half across the sea, and many a yellow victim, with occasionally a white sailor for good measure, went over the rail to the sharks without the formality of prayer nor the protection of a canvas shroud.

When this malignant carrier dropped her mudhooks in midchannel under the folds of her yellow flag, the city health authorities got busy. Who would volunteer to go aboard? Physicians and nurses were needed and called for.

Doctor Doren immediately agreed to "stay

with the ship," and Frazier, learning this, tossed aside his cards, banked his winnings and accompanied his friend.

The trials were sore and long, the burdens filthy and of overweight, but no complaint came from the stricken boat. There were deaths, of course; many of them. It was impossible to save all, since the malady finally spent itself, or was conquered, and a pest house was erected some four miles below the lumber mills, on the river beach, to shelter the tail-enders of this nightmare of scabs and fever. Doctor Doren took up his quarters there, and Frazier, with his work at an end, went back to the excitement, the clink of glass, the jingle of coin, the glare of light and the odor of liquor and tobacco.

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There came a time when the Doctor was alone. The last of the pock-marked had gone his way and the gloomy rooms were empty. The Doctor, himself, was leaving on the morrow. This evening, there was no one to speak to, none to cheer. He sat in his office doorway—a rough, whitewashed frame,—and watched the drift swing by on the river's ebb tide. There was a little swash of tide-rip waves against the rocky beach and there were faint sighs and weird draws of air through the foliage of the big trees skirting the shore.

Suddenly, there came a noise like dry drift crackling; like something moving in the bleached and high tossed floatsam and jetsam of the great river's winter tantrums. Doctor Doren turned and peered into the gloom—the gloom that was made deeper by the dark wall of timber. Sure enough, there was a moving form approaching. It came, a white Wearily, slowly it drew near the Doctor's masked object out of black surroundings. doorway. Then the Doctor spoke.

"Good evening, friend. Thou goest where?"

"Ah," came a muffled reply, "the very one I wanted to see—and talk to. Do you know who I am?"

"Yes, I know you. Come in, sit down and rest. You look worn. How came you?"

It was the erstwhile cocky and arrogant milltown manager. His face was heavily swathed in white bandages. He lumbered unsteadily with a cane. His voice, instead of being a coarse and beary growl, was now weak and squeaky. What a change in so short a time. The Doctor marvelled at it.

"I walked all the way, Doctor; all those four rock-strewn and drift-encumbered miles. It has well fagged me."

He breathed hard through the folds of cloth.

The Doctor lighted a small oil lamp and stirred a slow stove fire into activity. While he arranged coffee pot and frying pan and placed table dishes, he talked:

"Do you know, Mr. Poburn, this is a dangerous place? Do you know that this is a bad latitude? Do you know this is a pest house? Do you know—"

"I know," interrupted the bandaged one. "I know, but I'm not afraid. We've had the sickness at the mills. Five died. Your brother, Wyman, is buried beside his wife and children. We tried to find you; to let you know. We had no idea you were here although we might have guessed."

What the Doctor felt he didn't show, but he stopped his meal getting for a moment and inquired:

"And you came afoot, all the way, to find me, to let me know?"

"In one way, yes. In another, no. Really, Doctor, I want help. I want ease from constant pain. I want to live. I came for myself. I'm selfish, I know, but I suffer greatly. I've interviewed specialists and been treated and operated on by them in Portland, in Oakland and in 'Frisco. I know you can do something for me. Say you can, Doctor."

He started to unwind the face coverings, but ceased when Doctor Doren raised a hand.

"I know what ails you, Poburn. I saw it that day you showed how small of caliber you were; that day when you bellowed loudly and demanded harshly that Tom Frazier and I leave the mills. I saw the cancer then. Like a thriving fungus it looked, though not over-large nor attracting your attention much of the time. Still, I didn't think it would spread so rapidly. I'm painfully surprised."

There was little more said while the Doctor prepared an evening bite. He fussed over a dish of soft food and eggs for Poburn. The latter ate by lifting up the folds of cloth and, in so doing, exposed horribly raw lips and a hideously swollen mouth. Afterward, the Doctor removed the coverings and examined the direful ulcer that covered more than half the face and reached, in discolored ramifications, to the ears.

"I'm going away tomorrow, Poburn. A boat will be dispatched for me. You stay here with me tonight, and go when I go. I can't do a thing for you in this place."

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For a week Poburn was an inmate of the

little hospital of the seaport town. His life force was rapidly ebbing. Doctor Doren staid with him to the end. When it was all over, he turned abruptly and walked out into the cool, fresh ocean air toward the glare of red and the smell of wine.

He found Frazier before a roulette table mechanically fingering a high stack of blue chips as he watched and studied the different plays and turns of the wheel.

"Let's drink, Tom. I'm dead tired and broken up. I'm not feeling a bit good."

"I never drink while I'm playing, Doctor, but I'll cash in and join you."

This he did, and the two walked away from the gambling hall and up town to a quiet hotel bar.

"Did it ever strike you, Tom, how things have gone; the strange and extraordinary happenings of the past four or five months?"

The two men were seated at a round table by themselves. They had tall glasses, a bottle of Bourbon and a siphon before them. Both had dashed off more than the usual dosage for a starter, and, as it tingled thro' their veins, the Doctor went on:

"Just think, Tom, we arrived here in March, in the early part, wasn't it? and here it is but July, and there are you and I left of our company. Only you and I. This is a queer layout and, I fancy, Wyman's hoo-doo solution fits the case. I feel tonight as if I'm going on a long, long journey, myself. There's an uncanny something that tells me this. Pour out another one."

For once, Frazier sat silent. There was no mirthful reply, no broad smile on his handsome face. He was soberly sober and thoughtful.

The Doctor continued:

"Let's finish this jug and go to the room. I'll feel no worse for it in the morning. I may feel better."

But the morning found him feverish. During the night, he tossed and turned and dozed fitfully. There were depressing dreams, racking headache and nose bleed. Early in the forenoon, Frazier brought in the city's leading physician. An hour later, the sick man was back to the same hospital he had left the evening before, and in bed. He was registered as a typhoid case. In less than two weeks after this, Doctor Doren was in the cemetery on the wooded hill back of town, and Tom was alone and disconsolate.

When it became known that the Doctor would tarry no longer in this vale of tragedy and tears, Frazier changed from the big-hearted and cheery man of the town to a drawn and pale-faced and silent wanderer. He would go afoot, aimlessly, to out-of-the-way corners and there sit and brood. What his mind harbored, no one knew.

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One night, not long after the Doctor's death, more by mere chance than design, Frazier found himself at the entrance of the Metropolitan Gambling House. He knew the place, the manager and the usual patronage, but on this chance visit he recognized no one. He sidled in slowly and backed up to the bar with both elbows thereon and gazed disinterestedly over the crowd. The place looked unusually peopled. There was an excited, but hushed, hum of voices.

Through the haze of smoke from many smoldering cigars, Tom viewed the familiar scene and then it suddenly dawned on him that there wasn't a single game running. He turned to the bartender, a heavily muscled, active and intelligent young fellow, and inquired the reason.

This personage leaned over and whispered a reply the while he wiped the bar top lustily with his left hand.

"Rich cattle man from the Chief Moses Country here. Lost couple o' thousand. Went broke, I guess. Said he'd return at midnight and clean every bank in the shanty."

As he spoke, three men came in. One, a youngish man, was dressed entirely in buckskin. His two companions wore wide, gray hats and ornamented, high-topped boots with baggy trousers tucked therein. Prince Albert coats covered their pearl buttoned, double-breasted blue-flannel shirts. All wore black, loose and flowing ties at their throats.

The hum of voices drifted immediately into an awesome silence. A few nervous ones edged up to the wide doorway. Apparently, there was something expected. The atmosphere was tense and heavy with a portent unexplainable. The man in buckskin strode ahead and up to a "dead" faro layout that stood well back in the main room. The two in boots followed slowly, but appeared more interested in their surroundings than in a prospective gamble.

"Those two in long coats weren't here before," whispered the friendly bartender. "There'll be something doing. I'll bet a twenty on it. Got artillery?"

Tom didn't reply, but shook his head slowly.

"Open up, you sports." The clear toned, ringing voice startled even the husky drink dispenser. "Let's see how game you lousy,

saltwater wharf-rats are, anyway. Come, shuffle 'em lively or my friends will think I've led them into a den of cowards. Loosen up, you gang of cut-throats."

He—the buckskinned man—tossed a gold filled poke on the faro table after the harangue, but no dealer showed up.

Who started it, and why, never became generally known. Suddenly the lights went out and a shot flashed a yellowish-red glare in the blackness. Then another and another, then a fusillade for several long-drawn seconds. A dead silence followed the snappy reports and the air was choking thick with powder fumes.

Tom, with a hand clasped to each side, reeled into the gloomy street after nearly all of the scrambling and fleeing occupants of the place had passed him. He turned first one direction, then another, then halted, weak kneed and trembling. A friendly sailor accosted him sympathetically and asked if he were hurt.

"I'll give you a hand, matey, out of this hellhole, if you are. Come, lean on me and I'll be your main brace to a better clime."

Frazier tried to answer, but the blood welled up in his throat. Then he wilted to the curbing and choked and died.

So, in a bare six months of time this little family group, seeking a more moderate grade to travel, and something better than a down grade existence, stepped off, one by one, into the black valley beyond our ken. 'Tis odd, isn't it? And, how about the hoo-doo proposition.

WILL A. BARROWS.

Kake, Alaska.

U. S. CIVIL-SERVICE EXAMINATIONS

The U. S. Civil-Service Commission, Washington, D. C., announces examinations for Laboratorian and Assistant Laboratorian, both in bacteriology, and also for dietitian, all three positions to be connected with the U. S. Public Health Service. The salaries for the laboratory positions are from $90 to $180 a month, and $70 to $90 a month respectively, in addition to quarters, subsistence and laundry, while the compensation for dietitian is from $720 to $1344 per annum, together with quarters, subsistence and laundry. In addition, both salaries are increased by bonus payments.

Applicants for any of these examinations should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Customhouse, Boston, Mass., New York, N. Y., New Orleans, La., Honolulu, Hawaii; Post Office, Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Calif., Denver, Colo.; Old Customhouse, St. Louis, Mo.; Administration Building, Balboa Heights, Canal Zone; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

Applications should be properly executed, including the medical certificate, and filed with the Civil Service Commission, Washington, D. C., without delay.

The exact title of the examination desired, as given in the first paragraph of this announcement, should be stated in the application form.

Statements of experience. — Applicants should submit with their applications, and as a part thereof, complete answers to the following questions, numbering their answers to correspond to the numbers of the questions:

1. Experience in clinical pathology, including urine analysis, examination of gastric contents, feces, sputum, blood, and puncture fluids.
2. Experience in clinical bacteriology, including preparation of culture media, staining, identification of microorganisms, and preparation of vaccines.
3. Experience in blood chemistry, including preparation of blood chemical reagents and quantitative estimation of blood urea nitrogen, uric acid, creatinine, sugar, cholesterol, carbon dioxide, and other blood chemical constituents.
4. Experience in serology, including the mass grouping of cells prior to transfusion, Widal and similar agglutination tests and the complement fixation test for syphilis.
5. Experience in histopathological technic including preparation of stains, sections, and the gross preparation of tissues for museum purposes.

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There are also announced open competitive examinations for the positions of Laboratorian (roentgenology) and Assistant Laboratorian (roentgenology) to fill vacancies in the Public Health Service. These positions pay $130 to $180 a month and $70 to $130 a month respectively, to which is added quarters, subsistence and laundry, where these are available. Further, a bonus may be allowed.

Applicants should likewise ask for Form 1312 stating the title of the examination desired, as indicated in the preceding paragraphs. From the announcement of the examinations, we copy the following important information.

Answers in applications. — Applicants should submit their applications, and as a part

thereof, complete answers to the following questions, numbering their answers to correspond to the numbers of the questions.

In answer to Question 28 of the application form, state what experience (giving dates) you have had in the following:

(a) Installation, maintenance, and repair of x-ray apparatus.
(b) Making of plates and films according to commonly accepted standards of x-ray posturing.
(c) Developing plates and films and printing.
(d) Preparation and care of solutions.

In answer to Question 29 of the application form, state the minimum salary you are willing to accept.

(a) Without subsistence and one room as quarters.
(b) With subsistence and one room as quarters.

In answer to Question 30 of the application form, state if you are willing to serve anywhere in the United States; if you are not so willing, state the location or locations where you are willing to work.

Question 32. If married, state how many children you have.

AN OPEN LOCATION

We are informed of a very good opening in Argyle, Iowa, which is on the Santa Fe R. R., between Chicago and Kansas City. There is no physician in that town and anybody willing to do good country work can, we are assured, step right into a paying practice.

We are told that it is a nice, growing place with a large country district surrounding it. There are good stores, a bank, lumber yard, a good highschool. This would seem to be an unusually fine opening for somebody who finds it difficult to make things go in a big city.

GONORRHEAL OPHTHALMIA

The fact may or may not be generally known that women, who live south of the Rio Grande River, do not generally employ physicians for accouchement. Also, that gonorrheal infections abound. Further, that no law exists to enforce the use of silver-nitrate solution to disinfect the eyes after birth. Finally, that the midwife is very dirty and careless.

Therefore, physicians have to "bring-up the rear," treating gonorrheal ophthalmia to a greater extent than those who live in more favored places of the north. Judging from the number of blind beggars who parade the streets, Mexico stands in need of some law that will safeguard the eyes of the new-born as protection to future society, and the development of less persons who become dependents upon charity.

I have depended on the colloidal silver salts for a remedy for this infection, and want to say that I have thought of using acriflavine, but have hesitated because I have never known of its being employed in the eye for a protracted length of time.

Who knows if acriflavine used for two weeks in an eye-wash will produce a lasting yellow stain of the cornea or not? What is the value of this as compared with silver salts?

Anybody answer who knows; please.

T. H. STANDLEE.

Calle Morelos No. 15,
Saltillo, Coah., Mex.

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[The probability of causing a persistent or a long-lasting yellow discoloration of the cornea, with acriflavine, is great. We are under the impression that we have read some reports on that point. To us, there occurs no good reason for changing from the very efficient colloidal silver solution (such as Argyn) to acriflavine. We know that the silver preparations are effective and that they cause no disagreeable by-effects.—ED.]

A CORRECTION

On page 369 of this JOURNAL (May), we said that Dr. B. C. Keister, of Americus, Ga., was retiring from practice. This statement we have since learned was somewhat exaggerated. Doctor Keister has no intention of being laid on the shelf. He is very well, thank you, very much alive and quite ready to be busier than ever. After some postgraduate work at Washington University, St. Louis, Mo., the doctor intends to locate at El Paso, Texas, for the practice of medicine and surgery. He is making the change both for the benefit of a larger city and of the climatic advantages to be derived from a higher altitude. Our best wishes.

A CASE OF SYPHILIS COMPLICATED WITH GONORRHEA

Case History—Native girl; Indian.

Age—Unknown. Does not know how long she has been ill.

Apparent age—Anywhere from 12 to 16 years.

Parents dead—cause unknown.

No brothers or sisters.

Physical inspection—Dirty, filthy and lousy; extreme emaciation; diarrhea; knee and ankle joints swollen and painful; alopecia well advanced; macular eruption over entire body, but especially marked upon chest, both front and

back; open ulcer on left hip, greater-trochanter region; a very suspicious looking ulcer over 5th lumbar, sacrum and coccyx, about 2" long by 1¼" wide, and extending down to bone. Inspection of external genitalia revealed typical chancre about ⅜" diameter on inner surface of right labium; also copious discharge of a greenish yellow pus, which the microscope showed to be acute gonorrhea; also absence

of hymen is noted; enlargement of lymphatic glands is also noted.

At the time this patient was brought to the hospital, which was about the middle of January of this year, we had three oil wells that were coming in and giving considerable trouble, and my time was fully occupied in caring for the men working on them. In consequence, I was able to give this patient only a casual examination, instructing my nurse as to diet, and I did not try to make any examination for three or four days. I then found the conditions as presented. I might also add that this girl could not walk, or even turn herself in bed, and it took several days to obliterate the stench of her body. To use an oil field expression—I was up a stump. For some reason or another, the authors of medical books fail to tell very much of such cases, or I should say, of such combinations.

Here I have a typical case of secondary syphilis, with the primary lesion still very much in evidence (diagnosis made from clinical picture, and not from Wassermann reaction); gonorrhea, with an accompanying arthritis of both knee and ankle joints.

In such a case, what would you have done? You would, of course, have started treatment, and that is exactly what I did. To give her the first dose of neoarsphenamine I had to cut down to the vein, and I gave 0.3 Gm.; the

following day, I gave full dose of gonoccocus combined bacterin (Abbott), subcutaneously; I also started mercury protoiodide, 1/3 grain t. i. d.; I ordered hot douches of potassium permanganate solution 1:3000; dressed the ulcers with 1:1000 solution of acriflavine. The ulcers are now healed. Second and third dose of neoarsphenamine were given per rectum, and I might add that I gave full-strength dosage of the remedy.

The patient is now getting one dose a week of the gonoccocus combined bacterin, mercury one week and potassium iodide, saturated solution, 15 ggts. t. i. d. one week; also hot

tub-baths, 15 minutes, every day. By the way, I might add that my nurse, being a native, pays no attention to the bath thermometer, but runs the water as hot as the patient can stand it.

The patient is now up, walking around, eating three hearty meals a day and sleeping about eighteen hours out of twenty-four. The

skin is clearing up, the hair growing, and she is also gaining in weight. However, she still persists that she has never had sexual dealings with a man.

To me, this has been, and still is, a very interesting case. The enclosed negatives were made the day active treatment was started.

Apartado 94. I. P. ISRAEL.
Tampico, Mexico.

EXPERIENCES WITH CHLORAZENE IN MEXICO

For many months, we had missed Doctor Robert Gray's occasional letters through which he formerly used to keep us informed of his unusual and instructive observations. Quite recently, though, we were happy to receive two letters which dealt mainly with his observations with chlorazene.

Doctor Gray says that there are ulcers galore among those hapless people in Mexico, which result from the bites of ticks and mosquitoes and other insect pests; the little feet of children especially are often covered with scabs up to the knees. Of this affliction, chlorazene solution made short work. It was in the treatment of deeper-seated lesions that Doctor Gray found it necessary to devise a more bulky application, one that would not dry out so rapidly. He triturated some of the tablets, crushed to an impalpable powder, in mineral oil and this solution mixed beautifully with "parmo," a pure white substance put out by the Standard Oil Company. The result was an ideal salve which, being applied to deep ulcers and sores, hastened the healing process. [Doctor Gray might have used chlorazene surgical cream which would have served his purpose beautifully.—ED.] In his own person, a weaker solution of chlorazene was employed as an eyewash; Doctor Gray's eyes, being weak and the eyelids afflicted with styes. In consequence he could not read for two hours comfortably without resting. After one month's application, the styes had disappeared and the inflammation had ceased. Reading now is possible all day without inconvenience. Several of the doctor's patients found relief of like trouble and others for sore throat through gargling.

Dandruff yielded to a stronger solution applied to the scalp. A soft cloth was wetted in the solution and friction employed wherever it was needed. The microbes soon yielded—if such existed. At any rate, the dandruff cleared up.

Doctor Gray placed chlorazene mixture in tin cans, watching it closely "for bad conduct" in order to send out a warning against placing chlorazene in contact with iron. However, there seemed to be no necessity to issue such a warning. [We have found it preferable and safer to keep chlorazene solution only in brown glass bottles and the cream in porcelain jars. We avoid exposing metals to its action for any length of time, as it seems to have a corroding effect after a while.—ED.]

What is called seven years' itch in the States, yielded to the chlorazene solution, in Doctor Gray's experience, in less than a fortnight. In two patients, the entire body was affected; in others, certain portions. Some of them have been cured entirely; others are improving. In ringworm, also, chlorazene solution proved effective. There follows an interesting case report:

"A man, bending forward, was shot in the abdomen, the ball entering two inches below the umbilicus, going downward through the bladder and perforating the anus. Urine and feces were spattered over the legs. I was notified at ten o'clock, one stormy night. The next morning, I called and placed a cloth wet with chlorazene solution over the wound, keeping it there all day and night, constantly saturated. The patient was to be sent to a hospital sixty miles away. The next morning, I was surprised to find the wound closed so firmly that it required some effort to pass a sound through. I flushed the wound with the solution, but the ball did not come out.

"During the first night on the trip, the man urinated and defecated naturally. His improvement continued up to the door of the hospital where he was refused admission for want of money. Twenty-one days after the shooting, he was improving so greatly as to hold out hope of final recovery.

"I myself suffered an accident causing a fearful inflammation in the stomach and changing a simple hernia to a strangulated and painful one. Whatever was swallowed caused sneezing and coughing which was fearfully painful. I resolved to test the internal antiseptic power of chlorazene and swallowed what I judged to be 1 Gram (15 grains) from the bottle. The first dose provoked sneezing and coughing which were almost unbearable. During the night, the pain became less. Since then, I have taken chlorazene solution, three times daily, for the course of five days. The inflammation has nearly subsided; there is no more sneezing or coughing; the pain has lessened sufficiently to permit sleep. I no longer have any doubt as to a perfect cure. Indeed, my recovery is progressing so well that I am attending to the office during the day.

"I have found chlorazene to be a safe and effective intestinal antiseptic."

ROBERT GRAY.

Juarez, Pichucalco, Mexico.

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[Doctor Gray has our entire and sincere sympathy in this new accident. We trust that his hopes of a speedy recovery will not be disappointed. Doctor Gray's communication concerning his experiences with various drugs are always interesting and instructive. He has a way of finding out things that we elaborate in our laboratories, merely by exercising his thinker, his good sense and the therapeutic knowledge that has come to be his in a long and fruitful life. To have lived such a useful and beneficent life surely is worth something. No matter how lonely Doctor Gray may be, no matter how hard his lot has been for years, because of deplorable political conditions in Mexico, we almost find it in our hearts to envy him in these respects. More power to Doctor Gray! May he live as long as he can maintain good health and as long as he can be of service to those poor peons who look to him for succor and aid.—ED.]

CASES FROM PRACTICE

Many years ago, I was called to see a colored man supposed to be dying of consumption and given up by the doctor who had been attending him. The poor fellow was emaciated, coughing, having night sweats, and bringing up blood-stained fetid pus. His lungs contained cavities and his condition plainly indicated that he had very little chance for improvement, much less for recovery.

I was on the point of verifying the unfavorable prognosis of the physician who had thrown up the case, and of leaving him without prescribing for him, when something caused me to ask him his name; for, there was something familiar about his face and voice. He informed me that he had applied to me for treatment more than a year before for a "private disease," for which he never had been treated. I recalled that he did apply for treatment and then failed to show up with the fee and commence treatment as he promised to do. At that time, he had a typical chancre and commencing glandular involvement in the groin. According to his account, he just tried local remedies for his chancre and, when his bubo "busted," he just did what others told him who had suffered similarly. It thus appeared that he had gone eighteen months without specific treatment and he finally called in a doctor after he had gone into a decline with all the symptoms of pulmonary consumption. This history set me to thinking, and I decided to take a chance shot at the poor devil, leaving the idea of tuberculosis out of consideration altogether.

I cut out his greasy codliver oil and expectorant cough mixtures, and gave him 1/32 grain of bichloride of mercury and ½ ounce of brandy three times a day. I also gave him a prescription containing potassium iodide, fluid-extract of stillingia and fluid-extract of sarsaparilla. It is needless to add that he was given the very best attention in the matter of nutritive diet and hygienic conditions, of bathing and sunlight, until he was able to get out.

His response to antisyphilitic treatment was prompt and pronounced. He improved from the first day of specific treatment and, within two months, he was walking reasonable distances every suitable day. Within six months, he had gained twenty pounds, had no cough and went to work in a tobacco factory. As far as I know, he was practically a well man, living

to my own knowledge certainly ten years after. And, the ungrateful rascal never paid me a cent. Still, the experience was one of my valuable assets, and indirectly paid me well.

A Salad Blockade

In my younger days, I was once called to see an old lady who was suffering terribly with "cramp colic" as they called all bellyaches then. She was well on in years, thin and delicate looking, but wiry and well preserved. It was evident that there was some offending substance in the intestinal tract that was causing her the intense cramping pains. The only unusual thing she had eaten, she said, was some salad for dinner, of which she had partaken quite freely. When I saw her, it was about five hours after her dinner. Now, what is known in Virginia in a general way as "salad" is the green tops that sprout up from the common turnip early in springtime. They are tender, crisp greens and are much esteemed by certain people for their freshness and supposed healthy action. They are boiled and eaten as a change from the dry diet of winter.

The patient was given an enema and a good big dose of calomel and soda, also an anodyne mixture to control pain until the cause of the trouble could be removed. She had several actions from the bowel during the night, but very little relief from the cramps. The next day, I gave her two doses of castor oil and turpentine which seemed to sweep the whole tract clean; but, still, those crampy pains continued. After all of this purging, I attributed the continued pain to enteric irritation, and put her on a turpentine emulsion, keeping up the anodyne mixture.

The woman had no oppetite and only craved water, although she had no rise of temperature and her only real trouble was the severe pains that never left her entirely. By the fourth day, I was so thoroughly satisfied that there was nothing in the alimentary canal that I discontinued castor oil and enemas and began to use mild counterirritation over the abdomen; also administered a mixture of paregoric and Hoffman's anodyne repeated often enough to keep her quiet.

On the ninth day of her illness, the patient had grown quite weak; her secretions were all dried up, and her thirst was intense. While looking her over a countryman stopped in front of her house and wanted to know if anyone wanted to buy some sweet cider just made? The thing seemed to catch her attention at once, and she begged me to let her have some. I told her to drink as much as she wanted, as I secretly hoped she could get some comfort from something. She drank three big goblets of this fresh sweet cider, one after the other and dropped off into a quiet slumber. At my next visit, I found her bright and comfortable; she made the nurse bring the chamber vessel and show me what she had passed after the cider got in its work. And, lo and behold, there rested her whole dinner of green salad, after nine days sojourn somewhere in the intestinal tract.

It was beyond my comprehension how, after all the enemas and purges given this patient, this particular portion of her dinner meal was left behind, and how it remained so long and resisted digestion. The value of sweet cider as an immediate, pleasant and certain watery cathartic was well known to me, but it had never appealed to me as a remedy, nor did I think of it as such when I allowed this old lady to take it *ad libitum*. However, I did use it as such some years after, when I was called to see a country doctor's daughter in consultation. The child was about ten years of age and became obstinately constipated. After several days of dosing with the usual laxatives and purgatives, but without getting any action, he called in a neighborhood colleague, and the two called upon me. I could not make out any volvulus or intussusception and resorted to the more active purgatives, guarded with opium and hyoscyamus. After trying elaterium and croton oil without results, I felt stumped and, while pondering over her case, I happened to see some of the farm hands in the orchard pressing out a lot of fresh cider. It was as sweet as honey and deliciously flavored with the taste of the fine ripe apples. The little girl was tired and fretful; her secretions were dried and her tongue was glazed. I asked her if she didn't want some fresh cider, and she said "Yes, sir, I could drink a gallon right now."

She drank several goblets of it and, in less than twenty minutes, the flood gates were opened. If there was a kink in that bowel, it was promptly unkinked by that cider.

Now, I am not lauding sweet cider for admission into the Materia Medica nor asking for its favorable consideration by the Council on Chemistry and Pharmacy of the A. M. A. Still, I do say that a pint of sweet apple cider, before fermentation starts, will "go through" when all else fails.

Idiosyncrasies

There was a time when I paid little attention to the statements of patients who would ask me not to give them certain drugs because they could not take them without being made very sick. A few rude awakenings to the importance

of considering personal susceptibility cured me.

I had a patient whose life was jeopardized three times from eating English peas. The first time he ate them, or the time when he was made sick, he knew from his sensations that the peas were responsible. He never again had any desire to eat them, although he had been eating them without any ill effects for years. His symptoms were those of ptomaine poisoning—violently sick stomach, choleric purging and great prostration.

Years afterwards, he was taken severely ill at a hotel in Philadelphia with the same symptoms. Inquiry disclosed the fact that he had taken a plate of soup at his dinner and that it had been flavored with some green peas. His third attack followed the drinking of two goblets of milk from his cows that had gotten into an acre lot of tall English peas and grazed for an hour or two. Within two hours after taking the milk, he was taken with violent cholera morbus, cramps and collapse, and nearly lost his life.

I remember having given a lady a few grains of sulphate of quinine, leaving her under the impression that she was taking something else, when she had begged me not to give her any quinine as it did her very badly. To my dismay, in a few hours, she was seized with violent nausea and vomiting, and broke out from head to foot with the most intense urticaria I ever saw. The itching was so annoying that she came near going into convulsions. I had to give her an hypodermic of morphine to control the distressing pruritus.

I am sure that many sudden deaths attributed to socalled "acute indigestion," ptomaine poisoning, and heart failure have been due to unsuspected drug action or to certain food substances, where idiosyncrasies against the drugs or foods existed. I feel that no physician can afford to recklessly prescribe any drug for a patient when that patient has had unpleasant experiences with it formerly and so warns him, and when he does feel his way, he had better follow the Abbott method of giving "the smallest possible dose of the active principles at frequent intervals to effect." In this way, he will know what he is doing before he gets too much effect!

C. A. Bryce.

Richmond, Va.

HYPERTHYROIDISM

I treated a female child, six years old, from January 9 to 18, 1922. History: Been sick for three months. Apparently nothing wrong except tachycardia, with exudation in the lower limbs. Uranalysis proved negative. The valves of the heart did not functionate well, causing an annoying cough with a little bloody mucus at times. Appetite perverted; good at times. Bowel movements followed upon moderately large doses of purgatives. No fever; but most of the time the temperature was subnormal. Blood stream was pushed along the arteries with very slight pulsation. At times, the radial pulse was about 85. The heart sound was that of a veritable whirlwind and it was impossible to determine systolic or diastolic blood pressure or any other movement. The heart beats could not be counted by the use of the stethoscope.

With all this, the patient was very comfortable; quite bright and not distressed. Only at times, a little cyanosis occurred with shortness of breath. She had been treated by various physicians, and the last one advised a change of altitude (this is 5200 ft.). The doctor's last resort is too often "The Seaside or the Mountains."

I treated this child for a week blindly, by just guessing at the remedy best suited to relieve the symptoms (digitalis, cactus, apocynum, passiflora, etc.) with marked improvement in a few days.

About the fifth day after I began treatment, the thyroid gland on the right side of the neck began to enlarge and to become painful. Then, and not until then, I recognized that I was dealing with a condition of hyperthyroidism.

On the eighteenth day of January, I paid the last visit to this little girl, whose father and mother are wealthy, well informed people. She was sitting up in a chair playing with her toys.

My visit was for the purpose of dismissing the case. I told them about all what I knew of endocrinology as connected with the case, also that the average medical man did not know much about it. I frankly said that I considered the case to be hopeless in so far as I was concerned and I advised them to do nothing else in the way of treatment, nor to seek other medical advice. I informed them that the child would probably die even with the best of endocrine treatment.

February 3, I received a formal invitation to attend the child's funeral. What was done after my last visit, I do not know.

Would you have done like me under the circumstances or not? I wish the medical profession would "spur-up" and get a better line on the treatment of the disturbances of the glands of internal secretion.

T. H. Standlee.

Calle Morelos No. 15,
Saltillo, Mex.

What Others are Doing

THE FEEDING METHOD OF THE PIRQUET SCHOOL

In a paper read before a joint meeting of the King's County Medical Society and the Brooklyn Pediatric Society, Dr. Harry Apfel (*N. Y. Med. Journ.*, Feb. 1, 1922, p. 123-125), gave an excellent review of the Pirquet method of feeding.

Any physician who ever was confronted with the problem of infant feeding (and, what general practitioner is not concerned with such an every-day problem?) could not fail to observe, that the methods advocated by our leading pediatricians are far from being satisfactory, since they are too complicated and difficult for the mothers to carry them out. Dr. Clemens Pirquet, of Vienna, has worked out a new method of feeding, applicable not only to infants and children, but also to adults. The principles upon which he bases his method are as follows:

1. Whatever food we employ, we must compare its nutritive value with that of mother's milk. He takes milk as the unit of comparison and designates this unit by the term "nem," which is composed of the first letter of each of the three words: *Nahrung, Einheit, Milch* (nutrition, uniformity, milk).

2. The amount of food required by a person in the course of twenty-four hours, is in exact proportion to the square surface of his intestinal tract.

3. The square surface of the intestinal canal is equal to the square of the sitting height.

(To obtain the sitting height, measure the distance from the surface that patient sits upon, to the topmost part of his skull. In case of an infant, it is best to lay baby on its back, the thighs flexed with buttocks against a fixed board, and measure from the board to the top of baby's skull.)

4. The quantity of food to be given is in the proportion of 1 "nem" (1 Gram of mother's milk is equivalent to 1 nem) to one square cm, of the patient's "sitting-height" (*Sitz-Höhe*).

The only requirement is, that the food shall contain at least 10% and not more than 20% of proteids.

Since the amount of food required depends upon the individual and also upon whether the individual is in a state of rest or activity, the author suggests an optimum measure between five-tenths and seven-tenths of the patient's sitting-height, applicable to the average case; or, to use the originator's own technical formulation: "Use, seven decinem siqua."

The advantage of this system, as pointed out by Pirquet, consists in the fact that it can be easily carried out by the laity, for, as soon as they know the measurement of their children, it is simple arithmetic for them, to figure out the amount of food required.

For instance, the amount of milk to be given to a child one year old, having a sitting height of forty-five cm. could be figured out as follows:

Siqua (sitting-height square)....45x45 or 2025
Food requirement (in round numbers)...
.....2000 nems for 24 hours
Seven decinem siqua...1400 nems for 24 hours

That is, 1400 nems of mother's milk is to be given, if milk is the food ingredient desired. Other foods may be substituted and their nutritional value compared with milk.

Dr. Pirquet has prepared a special table of food values computed on the basis of milk. For instance, 1 Gm of farina is equivalent to 6 nems; 17 Gms of sugar equal to 100 nems, etc.

The American Relief Administration, which has for its object, to feed over 400,000 children in Austria, has used this method with excellent results. Nobel has employed it in the feeding of a large army with similar results. Dr. Schick, the originator of the Schick Test, uses this method in the feeding of premature infants and new-born children with very gratifying results.

It would be advisable to give this method a fair trial in our children's hospitals and see whether we can get the same good results, as they are obtained by our colleagues abroad.

RETENTION OF URINE IN OBSTETRICAL CASES

Every physician has had trouble with the patient who, following delivery, has been unable to empty the bladder. This is a frequent complication not only of obstetrical cases but also of various surgical operations. The resort

to the catheter has heretofore been found necessary, but it is not free from danger. In cases of this kind, Stater and Vickers, writing in *Northwest Medicine* for January, 1922, say that they have been using benzyl benzoate with good results.

They were led to use it by the good results obtained in the control of afterpains. Accordingly, in the next case of bladder distention following delivery, they gave it a trial. Two Cc. of benzyl-benzoate solution was given by mouth, and relief was obtained within a few minutes. In all, the drug was tried in twelve other similar obstetric cases. In none was the passage of urine delayed more than twenty minutes after the administration of the drug, and in only two cases was it necessary to repeat it. It was used in alcoholic solution, in doses from 2 to 4 Cc., or ½ to 1 dram.

The authors say, it should be given when symptoms of bladder distention become severe, i.e., within 8 to 12 hours after delivery or surgical operation, when the bladder can be outlined by palpation or percussion.

TREATMENT OF ASTHMA

In *The British Medical Journal* for October 15, 1921 (p. 598), there appears a communication by G. H. Wildish, of Eshowe, Zululand, South Africa, to the effect that he has treated thirty cases of asthma and asthma-like seizures with subcutaneous injections of the patient's own blood.

A 10-Cc. serum syringe, having a needle with a somewhat larger bore, is filled with boiling liquid paraffine and emptied, leaving a film of paraffin on the glass and needle. A large-bore intravenous needle is used to draw from 5 to 10-Cc. of the patient's blood, according to the weight of the person treated, direct into the syringe with the piston removed and the needle in place; the syringe should be about blood temperature. The piston is replaced, air is expelled, and the blood is injected subcutaneously into the patient's back towards the inner side of the lower angle of the shoulder blade.

The cases treated were examples of asthma and af asthmatical seizures occurring in bronchitis, acute and chronic. Of nineteen cases of asthma (seven in Europeans and twelve in natives), five were cured and fourteen improved. Two instances of asthmatic attacks in acute bronchitis and six in chronic bronchitis were improved. Of three cases of asthmatic attacks in Europeans, occurring in chronic bronchitis of a severe type following influenza, one was cured and two improved.

The apparently cured cases were those watched over three months without a relapse or any discomfort. The improved cases, all but one, had the same history—a complete cessation of asthmatic spasm for a time, varying from a week to two or three months. Bronchitis seemed to be improved but not cured by the treatment. Of the improved cases, twelve have had a second injection, two have had three injections; in these the doctor gave half the amount given originally; all but one of these have been at once relieved.

The one exception among asthmatic attacks, in bronchitis following influenza, was a young woman whose bronchitis had lasted for over two years and had reduced her to a wretched condition; she was thin, listless, sleepless, with a hard cough and slight sputum occasionally tinged with blood. Every few weeks, she would have violent asthmatic attacks lasting for four or five days. She was tested for tuberculosis repeatedly and by many different men, without result. After the first injection given for the asthma, and during an attack, the asthma ceased, and the bronchitis almost disappeared, but it returned as badly as ever on the eighth day. The injection was repeated, but this only seemed to make the condition worse, and a further injection proved useless. This case cleared up under intravenous injections of electroargol.

Of course, this is only a preparatory excursion; it will take time to consolidate the treatment and classify the cases in which it will be of use, lasting or temporary.

INTRAVENOUS SODIUM SALICYLATE IN ACUTE ARTICULAR RHEUMATISM

Gilbert, Coury and Benard (*C. R. Soc. Biologie*, July 23, 1921) have practiced the intravenous injection of sodium salicylate in very severe cases of acute articular rheumatism in which endocardial complications appeared imminent or had already set in. The doses varied from 0.25 to 2 Grams. They were given in the form of a 25-percent solution, and were repeated morning and evening. The results are described as favorable. No untoward sequelæ were encountered. Measurements which were made to ascertain the cycle of elimination showed that excretion of the drug commenced in the urine within half an hour of administration, attained its maximum between the first and second hours; remained more or less level for the next four or five hours, and then progressively diminished till elimination was complete by the twelfth hour. After considerable experience, they recommend that this method should not be allowed to replace the oral ad-

ministration of the drug, but that it should be reserved for the graver cases of rheumatism with endocardial or cerebral complications. [From *Brit. Med. Jour.*, Oct. 15, 1921.]

CIRCUMCISION PREVENTS SYPHILIS

Alexander Irvine (*Va. Med. Monthly*, July, 1921) declares that syphilis stands next to tuberculosis as a cause of death. National circumcision would prevent forty thousand deaths each year in the United States, according to the author. Circumcision, through the removal of the foreskin, prevents infections through an abrasion which usually occurs on the foreskin. After circumcision, the parts become tough like the skin, and are seldom abraded. The practice of circumcision explains the comparative infrequency of syphilis among the Jews.

Dr. Irvine feels that there would be no need for mercury iodide and salvarsan if the practice of circumcision would become nation-wide.

Replying to the above statements, Dr. M. A. Zoeckler, Daulatabad, Malayir, Persia, testifies, in a letter to the *Journal of the American Medical Association*, that circumcision is not a factor in the prevention of syphilitic infection, since in Persia, where it is practiced among the Jews and Mohammedans, syphilis is "frightfully common." The impression derived from ten years of practice of medicine in Persia leads him to believe that syphilis is steadily and rapidly increasing.

THE TREATMENT OF CARBON MONOXIDE POISONING

Carbon monoxide poisoning is one of the most widely distributed and most frequent of industrial accidents, says the U. S. Public Health Service. The gas is without color, odor, or taste. It is an ever-present danger about blast and coke furnaces and foundries. It may be found in a building having a leaky furnace or chimney or gas stove without flue connection, such as a tenement, tailor shop, or boarding house. The exhaust gases of gasoline automobiles contain from 4 to 12 percent of carbon monoxide, and in closed garages men are not infrequently found dead beside a running motor. A similar danger may arise from gasoline engines in launches. The gas is formed also in stoke-rooms, in gun turrets on battleships, in petroleum refineries, and in the Leblanc soda process, in cement and brick plants. In underground work it may appear as the result of shot firing, mine explosions, or mine fires, or in tunnels from automobile exhausts or from coal or oil burning locomotives.

Carbon monoxide exerts its extremely dangerous action on the body by displacing oxygen from its combination with hemoglobin, the coloring matter of the blood which normally absorbs oxygen from the air in the lungs and delivers it to the different tissues of the body.

Oxygen will replace carbon monoxide in combination with hemoglobin whenever the proportion of oxygen in the lungs is overwhelmingly greater. Therefore:

1. Administer oxygen as quickly as possible, and in as pure form as is obtainable, preferably from a cylinder of oxygen through an inhaler mask.
2. Remove patient from atmosphere containing carbon monoxide.
3. If breathing is feeble, at once start artificial respiration by the prone posture method.
4. Keep the victim flat, quiet, and warm.
5. Afterwards give plenty of rest.

THE USEFUL LEMON

Be very grateful when "handed a lemon;" for it has many uses in the sickroom, the kitchen, 'round the house and in milady's chamber.

The juice from half a lemon in half of glass of water before breakfast will correct the most torpid liver and prevent bilious troubles.

For hoarseness, lemon and sugar will prove helpful and pleasant to take and will cure sore throat when used as a gargle.

In fever, the lemon is cooling and of great value for moistening the lips and cleansing the tongue.

Two or three slices of lemon in a cup of strong, hot tea often will cure a nervous headache and refresh the mind and body.

A spoonful of lemon juice in a cup of black coffee frequently will cure bilious headache.

An outward application of lemon juice will allay irritation caused by insect bites.

If a teaspoonful of lemon juice is added to boiling rice or sago, the kernels will be whiter and have a more delicate flavor.—(*Amer. Food Journal.*)

BRONCHOPULMONARY SPIROCHETOSIS

The occurrence of bronchopulmonary spirochetosis is comparatively rare. This circumstance, together with the peculiar characteristics of the disease, makes it a particularly individual

problem. The victims of this disease are apparently suffering from tuberculosis. They have recurring hemoptysis for months. Usually chronic bronchitis, with loss of weight, emaciation, and a chronic cough ensue. Hemorrhages sometimes last for weeks and then may stop in a report of three cases, found that these organisms are more refractive and active than the treponema pallidum, and that they tended to be of two distinct types. One type was thin, delicate, and threadlike with more regular and numerous indulations; the other type was coarser, with few indulations and heavier staining.

There has been little investigation made upon this disease. Castellani first described it in 1906. Since then, there have been reports of cases occurring for the most part in the tropical climates. It is probable that the disease is more common in the United States than is realized; but, because of its close symptomatic resemblance to tuberculosis, it is seldom recognized until the sputum is examined and the characteristic organism identified. Patients respond to treatment with the arsphenamins very readily. There have been cases that, when treated for tuberculosis, were considered hopeless but, when treated with arsphenamin, recovered completely.

In view of the fact that this disease is more prevalent than is realized and that it does respond to treatment, it is important that every case of supposed tuberculosis that does not show tubercle bacilli in the sputum should be carefully examined for spirochetosis and syphilis. Prompt and intensive treatment with the arsphenamins may be expected to produce wellnigh miraculous results.

CALCIUM CHLORIDE IN THE TREATMENT OF DIARRHEA, OF VOMITING AND OF HEMOPTYSIS

A recent communication by Doctor Pellé to the Society of Paris Hospitals, and abstracted in *Le Monde Médical*, deals with the intravenous administration of calcium chloride. During the injection, various phenomena are observed of which the descriptions of the patients always agreed. At the beginning of the injection, the patient has a sensation of warmth in the mouth, which very rapidly becomes more general, extending through all parts of the organism. It is most marked in the ears, at the vulva and the anus. The sensation is preceded by pallor of the face which frequently gives place to intense congestion. The duration of these phenomena is not more than one minute, but they impress the patients deeply unless these are warned beforehand.

It is important that the solution be injected actually into the vein in order to avoid injuries at the point of injection that heal very slowly.

With reference to the results, Doctor Pellé gives the following information:

1.—*Action of Calcium Chloride Upon Diarrhea.* The author has treated twenty-four cases of persistent diarrhea in patients with pulmonary tuberculosis and has observed in the majority of cases a cessation of the flux. This result follows customarily in the course of a few hours and is very definite. In some cases, two or three injections, at two-day intervals, were required. Each injection was made with from 1 to 2 Grams of calcium chloride in a 5-percent solution. At first, Doctor Pellé injected only 25 centigrams of the remedy. The author then applied the treatment in serious dysentery and in dysenteric diarrhea. In diarrhea due to the bacillus of Shiga, the first injection brought about a decided diminution in the number of stools and three injections given every other day arrested the diarrhea definitely.

2.—*Action of Calcium Chloride in Vomiting.* Doctor Pellé employed calcium chloride for vomiting in tuberculous patients, injecting 1 or 2 Grams of the remedy intravenously. Out of thirty cases observed since March, 1921, the vomiting was arrested completely in seventeen after one or two injections. In twelve other cases, the vomiting ceased for varying periods (one to two weeks) and repetition of the treatment gave the same result. In only three cases in far advanced tuberculous patients, did the treatment fail to give any appreciable results.

In one case of uncontrollable vomiting of pregnancy, where no treatment had succeeded, a single intravenous injection of 1½ Grams of calcium chloride arrested the vomiting.

3.—*Action of Calcium Chloride in Hemoptysis.* The effect of calcium chloride administered by mouth in cases of hemorrhage and especially in hemoptysis has been known. However, Doctor Pellé asserts that this mode of administration is objectionable on account of the detestable taste of the remedy; moreover, in serious hemoptysis, it has not been successful in his hands. On the other hand, in two instances, a severe hemoptysis was arrested by intravenous injection. In one of them, the hemoptysis ceased completely after a single administration; in the other, the treatment had to be repeated for three days in succession before it was successful.

Among the Books

POTTENGER: "CLINICAL TUBERCULOSIS"

Clinical Tuberculosis. By Francis Marion Pottenger, A.M., M.D. With a chapter on Laboratory Methods by Joseph Elbert Pottenger, A.B., M.D. Second Edition. With 105 text illustrations and charts, and six plates in colors. Two Volumes. St. Louis, Mo.: The C. V. Mosby Company. 1922.

There is probably no important disease that has been studied as thoroughly and completely as tuberculosis. While the clinical course and the pathology of syphilis, carcinoma and similar maladies have been determined fairly well, in the case of the former, the causative virus was discovered too brief a time ago to have made possible conclusive etiological investigations; while, as for cancer, the true etiology of the affection is even yet undetermined.

It is different with tuberculosis. Its pathology has formed a favorite study of the leading pathologists for over a century. Its clinical course has long been observed and described clearly. With respect to its etiology, modern views date as far back as 1865 (Villemin) and the specific virus was discovered and announced in 1882. Since that time, experimental studies without number have made it possible for us to recognize, and realize, the significance of numerous factors that contribute to making tuberculosis one of the most wide-spread and most important diseases that affect not only the human family but also those animals that have been domesticated and live in close association with man.

It is self-evident that a book dealing at all exhaustively with all the salient problems connected with tuberculosis will have to be large. The most pretentious work of which we have knowledge, the "Handbuch der Tuberkulose" by Schroeder and Blumenfeld, comprises eight volumes, we believe, of which five have appeared so far. Such a comprehensive work, however, can manifestly command only a limited market. Nor is it necessary for such works to be issued in more than one language, because most tuberculosis students have at least a reading knowledge of German which is the language in which Schroeder and Blumenfeld's work is written.

For the English speaking physician, there have been available for many years several very good textbooks which, though, were very limited in scope and correspondingly limited in usefulness. While they served, and still serve, the general practitioner very well, the student, and the practitioner who devotes more or less exclusive attention to the numerous tuberculosis problems, requires more. When, therefore, Pottenger's "Clinical Tuberculosis" made its appearance, five years ago, it was greeted with well-merited acclaim. And, for a work of its kind, five years is a brief time to exhaust a first edition; so brief as to bear witness to the approval that the work has found.

Despite its title, which restricts the subject matter of its contents somewhat, his work contains so much of the theory of tuberculosis as to be practically sufficient even for most tuberculosis specialists. The first volume, devoted to pathological anatomy, pathological physiology, diagnosis and prognosis of tuberculosis, includes considerations of the modes of infection and all the many difficult problems associated with this phase of tuberculosis study. The information presented is remarkably complete and the conclusions arrived at are logically and conservatively presented. Pottenger's personal investigations, as they relate to diagnosis, for instance, are described clearly. Undoubtedly, they have proved of great value to the clinician.

The second volume deals with the complications and treatment. Here we find a splendid discussion of fever; what fever is, what it means, how it originates, and how it is to be managed. The remarks on anaphylaxis, on immunity, etc., also are highly instructive and enable the student to find the answers to many questions that he has been asking. As to treatment, all the many methods that have been advanced, from general, hygienic, dietetic measures to climatic, to drug treatment and specific treatment, find consideration. One of the most important points made by the author is, what we have insisted upon so forcibly for many years, that it is not the disease but the patient that must be treated—that the treatment must be individualized.

It would be a work of supererogation to describe in detail the author's various views on special problems; just as it would be invidious

and ungracious to try and find points with which issue might be taken. The study of Pottenger's "Clinical Tuberculosis" can not help being of great benefit; withal, it is absorbingly interesting. The personal note that the author maintains, his evident sincerity and his intimate familiarity with the subject relieve the tedium of study and aid in fixing facts in one's mind. It is the Reviewer's firm conviction that, certainly, every English-speaking tuberculosis physician should own and study this work; also, that every general practitioner will derive much and great advantage from its careful and industrious perusal.

GROVER: "ELECTROTHERAPY"

Handbook on Electrotherapy For Practitioners and Students. By Burton Baker Grover, M.D. Illustrated. Philadelphia: F. A. Davis Company. 1921.

Doctor Grover's book contains several surprises. In addition to the chapters devoted to the various modalities of electricity, to the diseases that are amenable to electrotherapy, in addition, further, to the chapters on diathermy, Roentgenology, and so forth, we find some on blood pressure, on hyperpiesia and on pain. The chapter on genitourinary diseases also contains some discussions that do not strictly fall within the circumscribed limits of the title, but which, nevertheless, are excellent. Doctor Grover's book appeals to us as commendable.

EBERHART: "HIGH-FREQUENCY CURRENTS"

A Working Manual of High Frequency Currents. By Noble M. Eberhart. M.D. Ph. D., D.C.L. Seventh Edition Revised and Enlarged. Chicago: New Medicine Publishing Co. 1921.

Doctor Eberhart's well-known working manual on high frequency currents has just come out in its seventh edition. It is characterized by its simplicity of style and by the fact that ultrascientific considerations have not been pushed too much in the foreground. The book is clearly intended for the practitioner rather than for the investigator. It is a good book.

BROWNE: "MEDICAL ELECTRICITY"

Medical Electricity for Students. By A. R. I. Browne. London: Oxford Medical Publications. 1921.

This book is primarily intended for the use of students preparing for the examination in Medical Electricity of the Chartered Society of Massage and Medical Gymnastics, and as an introduction to the works on the same subject by well-known authorities.

Its contents are divided in three parts, namely, electricity and magnetism; medical apparatus; and electrical treatment. In the third part, the effects of electricity on the body are discussed. There is also a chapter on ionic medication; one on radiant heat and light; and one on static, high-frequency and diathermy treatments. The book is held in the style of manuals, being concise and, as already mentioned, frankly intended for those preparing for examination.

CLARK: "DOCTORS"

Doctors. Entre Nous. Short Stories. By James Bayard Clark. Illustrations by Joseph St. Amand. New York: The Medical Times Company. 1922.

The reading of Doctor Clark's little book leaves one curiously disturbed. One is tempted to think of caricatures when considering the author's description of medical meetings and of his delineation of medical characters. However, caricatures are characterized by their bizarreness, while Doctor Clark's brush in no wise imitates Cruikshank, so to speak. There is never a loud laugh or a boisterous guffaw, although more than one quiet chuckle of enjoyment is elicited. Still more, there is an uncomfortable sense of guilt, of being caught with the goods, of being ridiculed, and, what is worse, ridiculed justly.

Doctor Clark's stories should be read and they should be multiplied indefinitely until every fad, every silliness, every perversion of function rampant in the medical profession has been castigated and corrected. Don't neglect to get this little book, to read, and to heed it.

HARE: "PRACTICAL THERAPEUTICS"

A Text-Book of Practical Therapeutics. With Especial Reference to the Application of Remedial Measures to Disease and their Employment Upon a Rational Basis. By Hobart Amory Hare, M.D., LL.D., B.Sc. Eighteenth Edition. Enlarged, Thoroughly Revised and Largely Rewritten. Illustrated. Philadelphia and New York: Lea and Febiger. 1922.

The differences between the therapeutist who has studied drug action in the sick human organism and the one who draws his conclusions from the results of experiments on animals in the laboratory are great. The latter is prone to deny merits to any substance offered for remedial purposes, the action of which upon the animal organism can not be registered by

the sphygmomanometer, the electrocardiograph and other cumbersome instruments. The former accepts those conclusions that force themselves to his attention, after careful clinical observation of the changes occurring in the sick patient after the administration of certain drugs—*nota bene*, while being mindful of concomitant circumstances that might possibly be responsible for some of the phenomena observed; and maintaining an open mind as to the possible fallacies of his conclusions. The important point is, though, that the practitioner will not permit himself to be stampeded into an ill-considered condemnation of drugs that can not be "proved" on the experiment table.

One of the reasons why Hare's "Practical Therapeutics" has reached its eighteenth edition is, that it is actually a practical book prepared by a medical practitioner who, for many years, has devoted special attention to the action upon the sick organism of drugs and of other remedial measures. "The object of this book," the author declares, "is to place the subject of treatment before the reader so that it may be applied at the bedside in a rational manner. The endeavor of the true physician is, to cure sometimes, to relieve often, to comfort always."

It is to be added that, in this volume, certain portions of the text of the U. S. Pharmacopoeia have been used by virtue of permission received from the Board of Trustees of the U. S. Pharmacopoeial Convention.

The Reviewer wishes to reproduce three aphorisms which the author presents in the first part of the book and which should be taken to heart. They are as follows:

A good physician is one who, having pure drugs, knows when to use them, how to use them, and, equally important, when not to use them.

Any drug which has the power to do good when rightly used, has the power to do harm if wrongly used.

When a physician gives a drug and the patient improves, care should be taken not to ascribe all the good results to the remedy employed. Nature must be given credit for a large part of the improvement.

CARMAN: "ROENTGEN DIAGNOSIS"

The Roentgen Diagnosis of Diseases of the Alimentary Canal. By Russell D. Carman, M.D. Second edition. Revised. Philadelphia: W. B. Saunders Co. 1920.

Here is a book that should appeal to the gastroenterologist, first of all, and also to the abdominal surgeon.

However, the interest of this book is not limited to the two classes of medical men cited, since all practitioners of medicine are concerned in the workings (whether regular or irregular) of the digestive tract, and all of them may benefit from the study of its irregularities as it is illustrated in this interesting textbook. Those who (like the Reviewer himself) have been subjected to gastric an' abdominal radiography, for whatever cause, will feel an especial urge to read the volume.

SIMPSON: "RADIUM THERAPY"

Radium Therapy. By Frank Edward Simpson, A.B., M.D. Illustrated. St. Louis: C. V. Mosby Company. 1922.

Radium is one of the most interesting substances and forces that claim to our attention today. The study of the tireless and inexhaustible activity of radium emanation, of radium forces is fascinating. Its therapeutic possibilities are gradually and slowly being realized and the result is an immense amount of work that is being done. This can be judged perhaps by the fact that the bibliography, which the author declares is fairly comprehensive, occupies fifty-nine pages of text in small type.

A book like this is too technical for this Reviewer to discuss intelligently. He can only express his astonished admiration for the manner in which the mysterious powers of nature are being utilized for the healing of disease.

AARON: "DIGESTIVE ORGANS"

Diseases of the Digestive Organs. With Special Reference to Their Diagnosis and Treatment. By Charles D. Aaron, Sc. D., M. D., F. A. C. P. Third Edition. Illustrated. Philadelphia: Lea and Febiger. 1921.

"The plan of the work, as before, follows the physiologic path of the digestive tract, beginning with diseases of the mouth, and taking up in succession the pharynx, esophagus, stomach, liver, gall bladder, bile ducts, pancreas, small intestine, vermiform appendix, cecum, colon, sigmoid flexure, rectum, and anus. The author has attempted to put before the practitioner, in an orderly, consecutive manner, the diagnosis and treatment of digestive diseases, and to make available all the resources at his command. There is an unfortunate tendency nowadays to isolate the consideration of diseases of the digestive organs from the great body of internal medicine. But there is a direct connection between the functions of the digestive tract and the functions of other organs, and this fact of interdependence is of prime significance in gastroenterologic pathology. The author has endeavored to reaffirm the intimate relationship between gastroenterol-

ogy and the other branches of internal medicine, . . .

"The book is intended not only as an aid to the specialist in diseases of the digestive tract, but also as a ready reference work for the general practitioner and surgeon . . .

"Recent methods of examining the feces to determine the condition of the intestinal function are indispensable to the physician who would deal successfully with affections of the digestive organs. These new procedures are particularly valuable in cases in which the subjective sensations or symptoms are indistinct or absent. With the diagnostic technic now available for the examination of the feces after a test diet, we can determine the origin, formerly obscure, of many disturbances of the intestines. The diagnostician is now able to detect the more minute disturbances of absorption, secretion and motility, and institute rational treatment. The test-diet stool findings in each one of the diseases of the digestive organs are fully explained in due order."

The quotations indicate only a portion of the wealth of material that Doctor Aaron presents to his readers. He pays due attention to the most recent theories and discoveries having to do with the functioning of the digestive organs. Not only are diseases of these organs discussed in detail but the relation of improper and of proper diet to other constitutional maladies has received attention.

At this time, when the immense importance of perfect digestion and assimilation, as also that of autointoxication of intestinal origin, is realized so fully, a close study of the subject matter contained in Doctor Aaron's work is essential. The book is to be recommended sincerely as of great value.

STEKEL: "SEX AND PSYCHO-ANALYSIS"

Twelve Essays on Sex and Psychoanalysis. By Wilhelm Stekel, M. D. Translated and Edited by S. A. Tannenbaum, M. D. New York: The Critic and Guide Company. 1922.

These twelve essays are a striking contribution to the subject on which they treat. There seems to be no reasonable doubt that psychoanalysis has thrown much light upon the various forms of sexual perversion, as well as upon the relation between certain forms of crime and perverted sexual impulse. It has also made it clear that certain distorted religious impulses are fundamentally sexual in their origin.

While the scientific physician can undoubtedly learn from this book much that is valuable, it may well be that many readers will hesitate to accept some of the author's conclusions; such, for example, as the following:

"There are no absolutely chaste human beings."

"The advocates of onanism have surely brought much less harm into the world than those who condemn the practice."

This Reviewer expresses no opinion on the truth or falsity, wisdom or unwisdom, of the quotations cited. But, in all fairness, they should be taken in the light of their context. To do otherwise, would be, to convey a distorted view of the author's teaching. In the words of Bacon, "Read not to contradict and confute; nor to believe and take for granted; but to weigh and consider."

JONES: "MEDICAL ELECTRICITY"

Medical Electricity. A Practical Handbook for Students and Practitioners. By H. Lewis Jones, M.A., M.D., F.R.C.P. Eighth Edition. Revised and Edited by Lullum Wood Bathurst, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1920.

A new revision of Dr. H. Lewis Jones' well-known handbook on medical electricity can only be received with gratitude. This latest (the eighth) edition was in charge of Dr. Lullum Wood Bathurst, Doctor Jones himself having died some years ago. In this new edition, the war experiences, as far as they have concerned and benefitted electrotherapy, are utilized. A new chapter on ultraviolet radiation has been added and phototherapy has received additional attention.

TOUSEY: "MEDICAL ELECTRICITY"

Medical Electricity, Röntgen Rays and Radium, with a Practical Chapter on Phototherapy. By Sinclair Tousey, A.M., M.D. Third Edition, Thoroughly Revised and Greatly Enlarged. Illustrated. Philadelphia: W. B. Saunders Co. 1921.

Tousey's is the most ambitious textbook on electrotherapy with which we are acquainted. It has been before the medical profession for a good many years, the first copyright bearing the date of 1910. It is one of the more scholarly treatises, a reference work for those making electrotherapeutics a specialty and who necessarily are bound to investigate its various problems in great detail.

Not but what the general practitioner, who makes use of this form of therapy, very much as he occasionally does surgery, will be repaid by the study of "Tousey". It is a splendid book, as far as the Reviewer can tell. It is complete and authoritative.